PATTERNS AND PREDICTORS OF MENTAL HEALTH SERVICE USE AND SERIOUS MENTAL ILLNESS AMONG COMMUNITY-DWELLING ELDERLY

A Dissertation

by

BRADLEY ERIC KARLIN

Submitted to the Office of Graduate Studies of
Texas A&M University
in partial fulfillment of the requirements for the degree of

DOCTOR OF PHILOSOPHY

August 2005

Major Subject: Psychology

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Approved by:

Co-Chairs of Committee,	David H. Gleaves
	Michael Duffy
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	Charles D. Phillips
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ABSTRACT

Patterns and Predictors of Mental Health Service Use and

Serious Mental Illness Among Community-Dwelling Elderly. (August 2005)

Bradley Eric Karlin, B.A., University of Michigan; M.S., Texas A&M University

Co-Chairs of Advisory Committee: Dr. David Gleaves
Dr. Michael Duffy

Older adults have historically utilized mental health services at substantially low rates. Unfortunately, though professional, policy, and other recent developments portend an increase in service use, there has been scant empirical attention devoted to the current or recent utilization of mental health treatment by the elderly, and almost nothing is known about the correlates of mental health need and service use among older adults. Accordingly, the present study examined patterns of serious mental illness (SMI), specific mental health syndromes, and service use among older (65+) and younger (18-64) adults throughout the United States, and the extent to which various factors predict mental health need and the use and magnitude of mental health treatment. In addition, the study examined factors related to unmet need, as well as age group differences in perceived benefit from treatment. The findings reveal that older adults were three times less likely than their younger counterparts to receive any outpatient mental health treatment. Only 2.5% of older individuals utilized any outpatient mental health service in the past year, versus 7.0% of younger adults. The results indicate that the low rate of utilization by older adults may be partly a function of limited subjective mental health

need. Prevalence estimates for SMI and all specific mental health syndromes, with the exception of agoraphobia, were markedly lower in the older than the younger cohort. Importantly, though mental health problems appear to be significantly undertreated in older and younger age groups, the study also reveals that those older and younger adults that make it into services typically benefit considerably from treatment. It is hoped that the knowledge yielded by the current study will promote efforts to enhance mental health care access and reduce the long neglected mental health needs of the nation's elderly population. Several factors related to mental health need and service use were identified in the study that may assist policy, planning, and outreach efforts aimed at increasing service access.

DEDICATION

To my grandfather, William Brodsky, my best friend, my teacher, my foundation. Your gentle caring, generosity, warmth, and guidance have made this and all of my pursuits possible. It is because of you that I strive to positively impact the lives of older adults, as you have so positively impacted mine.

To my mother, Renee Merrill Karlin, whose love and compassion are limitless. Your love and devotion are the seeds of my person and product.

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I am very grateful for having such an outstanding doctoral committee and graduate program faculty. Throughout my graduate school career, they have appreciated and supported my passion in geriatric mental health service delivery and policy. It is because of this recognition and investment in my professional interests and career that I have been able to build a program of research on mental health services delivery to the highly neglected older adult population and begin to bring about positive change.

First, I would like to thank my co-chair, Dr. Michael Duffy, who has been a true mentor, teacher, and source of support throughout this project and my graduate school career. He has truly appreciated the importance of policy and macro level service delivery issues. He is a model geropsychologist, and I have recognized for years how lucky I have been to have him as a major advisor. I would also like to thank my co-chair, Dr. David Gleaves, from whom I have learned so much about statistics, methodology, mentorship, and the true meaning of being a "scientist-practitioner." His wisdom, patience, and generosity are unmatched. I am also very fortunate to have had Dr. Charles Phillips' expertise and keen insight on services research and policy on this project. His excellent feedback, questions, and points for discussion benefited this study and the scholarly process. I am also very grateful to Dr. Les Morey, whose interest and active involvement made this an even more exciting, intellectually stimulating, and successful project. I also want to thank Dr. Morey for all his guidance, supervision, and teaching throughout my graduate school career, including his unwavering support and direction throughout the dissertation project.

Furthermore, I would like to thank the Research Triangle Institute for assisting me with several questions on using SUDAAN software for data analysis in this study. In addition, I am grateful to the Substance Abuse and Mental Health Services Administration (SAMHSA) for providing the data used in the present study and for SAMHSA staff's assistance in responding to several data-related inquiries.

Finally, I would like to express my most heartfelt thanks to my family. This is the product of your efforts as much as it is mine. Thank you.

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INTRODUCTION

The mental health needs of the nation's geriatric population have long been neglected. Past research has consistently documented strikingly low rates of mental health service utilization by older adults, particularly in the outpatient sector. Data from the Epidemiological Catchment Area (ECA) Program conducted during the early 1980s revealed that 4.2% of young-old (65-74) and 1.4% of old-old (75+) individuals received any mental health treatment, compared to 8.7% of younger (18-64) adults (German, Shapiro, & Skinner, 1985). Older adults were even less likely than their younger counterparts to use specialty mental health services. Only 0.3% of young-old and no old-old respondents visited a mental health specialist, whereas 4.1% of younger adults saw a specialty mental health provider (German, Shapiro, & Skinner, 1985). Moreover, elderly individuals have been found to receive only 2.7%-4% of clinical services rendered by private-sector psychologists and psychiatrists (Swan & McCall, 1987; VandenBos, Stapp, & Kilburg, 1981). Mental health care utilization by older adults is even more limited in rural regions (Durenberger, 1989; Stefl & Prosperi, 1985).

Furthermore, several studies conducted in the public mental health sector in the 1970s and 1980s (Flemming, Buchanan, Santos, & Rickards, 1984; General Accounting Office, 1982; Goldstrom et al., 1987; Redick, Kramer, & Taube, 1973) consistently found older adults to account for between four and six percent of community mental health center (CMHC) consumers. These findings are particularly disconcerting due to

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This dissertation follows the style of the *Journal of Consulting and Clinical Psychology*.

the fact that the public mental health care system has been specifically charged by Congress with targeting the mental health needs of older adults and providing for improved access to geropsychological treatment.

Prevalence of Mental Illness in Late Life

Although older adults infrequently utilize mental health services, it is generally believed not to be due to lack of mental health need, though current psychopathology prevalence data for older adults are limited. Conservative estimates based on data from the ECA Program are that approximately 12% of community-dwelling individuals age 65 and older, and approximately 16% of individuals 18-64, suffer from one or more clinically diagnosable mental disorders (Regier et al., 1988a). Psychopathology prevalence rates for older and younger adults have been found to be approximately 7% and 11%, respectively, when disorders of cognitive impairment, substance use, and antisocial personality are excluded (Regier et al., 1988a). These estimates are lower than recent reports on mental illness released by the U.S. Surgeon General and the U.S. Administration on Aging, which estimate that 20% of younger and older Americans suffer from mental disorders (U.S. Department of Health & Human Services, 1999; U.S. Administration on Aging, 2001). This difference may, in part, be due to the exclusion of certain mental disorders (e.g., generalized anxiety disorder) from the ECA studies, differences in the prevalence periods (e.g., one-month vs. one-year) examined in epidemiological studies, different age cutoffs (65 versus 55), and changes in the mental health diagnostic system since the ECA studies were conducted.

The prevalence rates reported for specific disorders in late life vary considerably. Differing prevalence rates for similar disorders is likely partly a function of the method used to determine the presence of a disorder (e.g., diagnostic criteria vs. rating scale). Data from the ECA Program, which utilized the Diagnostic Interview Schedule (DIS), revealed the prevalence rate of major depression in older (65+) adults to be 1%-2%, versus 2%-3% for younger adults (Regier et al., 1988a). However, an earlier study employing the Schedule for Affective Disorders and Schizophrenia (SADS), rather than the DIS, found the prevalence rate of major depression to be 5.4% in the elderly. Rates of subclinical (or "minor") depression and anxiety are substantially higher than the prevalence rates cited above and often greater than the corresponding rates in younger adults (Blazer & Williams, 1980; Himmelfarb & Murrell, 1984; McKegney, Aronson, & Oot, 1988). Prevalence rates for minor depression among older adults are generally between 20% and 30%, with the rates highest among the old-old (75+) (Smyer & Qualls, 1999).

There has been much less empirical attention devoted to anxiety disorders in late life, though existing data indicate that anxiety disorders are the most prevalent emotional disorders in the elderly population (Regier et al., 1988a; Smyer & Qualls, 1999). Compared to younger individuals, anxiety disorders are believed to be somewhat less prevalent in the elderly, though some researchers have suggested that older adults tend to under-report anxiety symptoms (Blazer, George, & Hughes, 1991; Smyer & Qualls, 1999). Reported prevalence rates of anxiety disorders among older adults vary considerably, ranging from approximately 6% to 33% (Blazer, George, & Hughes, 1991;

Himmelfarb & Murrell, 1984; Myers et al., 1984; Regier et al., 1988a). One study from the ECA Program revealed the one-month prevalence rate of anxiety disorders (including phobias, panic attacks, and obsessive-compulsive disorder) in older adults to be 5.5%, versus approximately 7% in younger adults (Regier et al., 1988a). Myers and colleagues reported ECA data revealing the six-month prevalence rate of anxiety disorders (phobia, agoraphobia, and obsessive-compulsive disorder) to be 11.2% for women age 65 and older, and 6.2% for males 65 and older. Flint (1994) found that 11.4% of adults age 55 and older met criteria for an anxiety disorder within the past year. Studies investigating the prevalence of generalized anxiety disorder in older adults have reported rates ranging from 1.1% to 17.3%, with rates varying as a function of the age of the sample (young-old vs. old-old), health status, and the assessment method used (Copeland et al., 1987; Skoog, 1993).

With respect to bipolar disorder, the ECA studies found the prevalence rate to be close to 0 among older adults; however, this may be an underestimation, as mania may manifest differently in late life. Similarly, the prevalence rates of schizophrenia and personality disorders among older adults are widely believed to be underestimated (Post, 1980; Rosowsky & Gurian, 1992). Schizophrenia is believed to be somewhat more prevalent in younger adults. Regier et al. (1988a) found the prevalence of schizophrenia in younger and older adults to be approximately 0.8% and 0.1%, respectively. However, it is important to recognize that the Diagnostic and Statistical Manual of Mental Disorders, Third Edition (DSM-III), precluded the diagnosis of schizophrenia when the initial onset occurred beyond the age of 45. Furthermore, with respect to personality

disorders, it is believed that many Axis II features, particularly those of the Cluster B disorders, such as acting out, may manifest differently in the graying years, leading to under-diagnosis (Rosowsky & Gurian, 1992).

Substance abuse is a serious, though often under-recognized, problem in late life. Relative to younger individuals, older adults are much less likely to abuse illicit substances, though they are far more likely to abuse prescription or over-the-counter medications (Lisansky-Gomberg, 2000; Smyer & Qualls, 1999). Studies of alcohol abuse among non-institutionalized elderly have documented prevalence rates ranging from 2%-10%, though these figures may be underestimates due to the tendency for substance abusers, and perhaps even more so for older substance abuse users, to deny usage (Maypole, 1989; Segal, Van Hasselt, Hersen, & King, 1996). These rates are not substantially different from estimates of alcohol abuse for the entire adult population (American Medical Association Council on Scientific Affairs, 1996).

The rates of delirium and dementia are considerably higher among older than among younger adults. It is estimated that 10% of those over 65 hospitalized for a general medical condition have delirium on admission and that another 10%-15% usually develop delirium while in the hospital (American Psychiatric Association, 1994). There are somewhat differing prevalence rates of dementia reported in the literature, which is likely due to the difficulty in reliably detecting more mild cases. Alzheimer's disease alone is believed to affect 8%-15% of individuals age 65 or older, with the prevalence rate increasing dramatically with age (Ritchie & Kildea, 1995).

In contrast to psychopathology prevalence rates among community-dwelling older adults, the prevalence of mental illness among institutionalized elderly individuals is substantially higher. The prevalence of psychopathology in nursing home residents, who are often among the least likely to receive mental health care, is between 65% and 90% (Burns et al., 1993; Lair & Lefkowitz, 1990). Furthermore, it is important to recognize that the suicide rate is higher in the elderly population than in any other age group (Blazer, Bachar, & Manton, 1986; Meehan, Saltzman, &, Sattin, 1991).

Efficacy of Mental Health Treatment with Older Adults

Despite longstanding public and professional stigma regarding older adults' ability to benefit from psychotherapy, the limited utilization of mental health services by older adults is not due to a lack of proven interventions or questionable treatment efficacy. Over the last couple decades, a variety of psychological interventions, mainly for the treatment of depression, have been developed and proven effective for use with older adults (Gatz et al., 1998). Furthermore, there have been several meta-analyses conducted over the last several years confirming the efficacy of psychological and psychosocial interventions with the elderly. A meta-analysis by Scogin and McElreath (1994) found cognitive therapy, behavior therapy, interpersonal therapy, and supportive therapy significantly reduced depression in older adults. Significantly, the mean effect size obtained by the researchers was $d = 0.78$, which is equivalent to a high effect size according to Cohen's (1988) classifications. Similarly, in their meta-analytic review of 17 studies examining psychological treatments for geriatric depression, Engels and Vermey (1997) found behavior therapy and cognitive therapy to be significantly

effective in reducing depression in older adults. The mean effect size reported by Engels and Vermey was $d = 0.63$. It is worth noting that the researchers used a more conservative effect size estimation procedure than that used by Scogin and McElreath (1994) that involved correcting for pretest differences between treatment and control conditions in many of the studies that were included in the meta-analysis. A recent meta-analytic review of 122 psychosocial and psychotherapeutic intervention studies by Pinquart and Sorensen (2001) found that psychotherapy, particularly cognitive-behavioral therapy, significantly reduced depression and improved other self-ratings of subjective well-being. Finally, a meta-analysis of four randomized controlled trials found that cognitive-behavioral, behavioral, and psychodynamic therapies were significantly and equally more effective than placebo in reducing depression in elderly clients (Gerson, Belin, Kaufman, Mintz, & Jarvik, 1999).

The efficacy of psychological interventions has also been examined in comparison to and in combination with pharmacotherapy. Compared to psychotropic medication, psychotherapy has been found to have similar or greater efficacy in reducing depression in older adults (Scazufca & Matsuda, 2002). In addition, it has been demonstrated that, in both younger and older adults, psychotherapy in conjunction with pharmacotherapy is significantly more efficacious in treating mental health problems than is pharmacotherapy alone (Areán & Cook, 2002; de Jonghe, Kool, van Aalst, Dekker, & Peen, 2001).

Furthermore, there is a growing body of research demonstrating the efficacy of various psychological and psychosocial interventions for a multitude of psychological

and behavioral conditions associated with dementia, including agitation, aggression, depression, verbal disruption, wandering, sleep disturbance, and certain cognitive functions. Reviews of many of these studies are available (Burgio & Fisher, 2000; Opie, Rosewarne, & O'Connor, 1999).

Barriers to Mental Health Services for Older Adults

Various dynamics implicating individual, system, and policy domains have been cited as contributing to the disproportionately low utilization of mental health services by the nation's geriatric population. Societal stereotypes regarding aging, as well as pervasive misperceptions and lack of awareness of both geriatric psychopathology and mental health treatment, have reduced both the availability and utilization of geriatric mental health services. There has long been a persistent stigma held by health care professionals and elderly individuals alike that mental illness (e.g., depression) is a natural concomitant of the aging process (Gaitz, 1974; Lasoski, 1986). In addition, there has long been reluctance on the part of the mental health community toward treating older adults. Many psychologists and psychiatrists have traditionally viewed elderly individuals as less interesting and less treatable clients (Ford & Sbordone, 1980; Zarit & Zarit, 1998; Zivian, Larsen, Knox, Gekoski, & Hatchette, 1992). The notion that advanced age precludes successful therapeutic change has long been ubiquitous in the mental health community (Lasoski, 1986). This enduring perception of therapeutic nihilism was first advanced by Sigmund Freud (1905) who proclaimed that older adults (defined by Freud as age 50 or over) are no longer cognitively equipped to benefit from psychotherapy.

In addition to professional ageism, there are unique countertransference issues with older clients that have served as notable treatment barriers. For example, some psychologists, due to fear of their own mortality or unresolved issues with family members, avoid working with the elderly (Moberg & Lazarus, 1990). Parentification and infantalization are also common with older clients (Malamud, 1996; Poggi & Berland, 1985). Consequently, there has historically been a shortage in the number of psychologists willing and trained to treat older adults, a phenomenon further exacerbated by limited graduate training in scientific and applied geropsychology (Lasoski, 1986).

Furthermore, many older adults themselves have long held negative biases toward psychopathology and mental health interventions that hinder professional help-seeking behavior (Lasoski, 1986; Waxman, Carner, & Klein, 1984). Significantly, recent elderly cohorts lived through the era of routine institutionalization for mental health problems and the characterization of the mentally ill as "crazy," which instilled in many older adults a sense of trepidation and reluctance toward seeking mental health services (Lasoski, 1986). As a result of cohort experiences, many older adults associate mental health treatment with crude and invasive techniques, such as prefrontal lobotomies, employed in the first half of the 20th century prior to the deinstitutionalization movement (Waxman, Carner, & Klein, 1984; Yang & Jackson, 1998). Because of these patterns, some older adults may view mental health treatment as a threat to their self-determination and autonomy (Lasoski, 1986; Yang & Jackson, 1998).

When elderly individuals seek treatment for mental disorders, they overwhelmingly present to general practitioners or primary care physicians (Gatz & Smyer, 1992; Lasoski, 1986), who commonly fail to detect mental disorders, such as depression, in older adults, which is often mistakenly attributed to organic illness or normal age-related changes (Gatz & Smyer, 1992; Mackenzie, Gekoski, & Knox, 1999). Furthermore, physicians disproportionately prescribe medication to treat psychological symptoms in older patients. Burns and Taube (1990) found that approximately 80% of older adult visits to primary care physicians for mental health complaints were treated with psychotropic drugs. In contrast, Mojtabai (1999) found that 43.6% of individuals age 15-54 were prescribed psychotropic medication for psychological problems by primary care physicians. Similarly, Kisely and colleagues (2000) found that older patients were significantly more likely to be prescribed psychotropics than were younger patients. Physicians are also less likely to refer older patients than they are their younger patients to mental health specialists, and many physicians believe, erroneously, that psychotherapy both alone and in conjunction with pharmacotherapy is less efficacious for older adults than it is for younger individuals (Alvidrez & Areán, 2002; Mackenzie, Gekoski, & Knox, 1999).

The general medical community's inadequate detection of psychopathology, its preferential bias toward psychopharmacotherapy, and its limited confidence in psychological treatments are especially significant factors given that physicians are the most common source of referral for geropsychological care. Often, older adults do not recognize that depressive or other psychological symptoms are manifestations of mental

illness (Yang & Jackson, 1998). Even among younger adults, recognition of mental illness has been found to be the most difficult step in the mental help-seeking process (Saunders, 1993). At the same time, perceived need is considered by researchers to be necessary, though not sufficient, for initiation of services (Leaf, Bruce, Tischler, Freeman, & Myers, 1988). Not only do many older adults lack psychological-mindedness, they also frequently lack awareness of the availability of mental health care resources, often referred to as "perceived availability" (Fichter & Weyerer, 1982, as cited in Lasoski & Thelen, 1987; Rost, Fortney, Fischer, & Smith, 2002). Thus, older adults are unlikely to self-refer to a mental health specialist and are highly reliant on the physician as a gatekeeper to the mental health sector.

Furthermore, the treatment of mental illness by primary care practitioners, the typical providers of mental health care to older adults, is often ineffective or provides only limited improvement. In his recent review of the health services research on quality improvement for late life depression in primary care, Callahan (2001) concluded, "the outcome of major depression in the usual care of primary care is typically poor; this is particularly true of late life depression" (p. 777).

Resource barriers, particularly financial and transportation obstacles, have also served as noteworthy constraints on older adults' access to psychological treatment (Estes, 1995; Weyerer, 1983). The availability of transportation is a particularly salient factor in mental help-seeking in rural areas (Gaitz, 1974; Neese, Abraham, & Buckwalter, 1999). Financial obstacles have served as significant disincentives for the older client to seek, and the therapist to provide, geropsychological treatment,

particularly in the outpatient sector. As detailed below, Medicare reimbursement for mental health services provided by psychologists was virtually non-existent until recently. In 1988, mental health care accounted for less than 3% of Medicare expenditures, or $2.2 billion. Of that amount, only $300 million was for outpatient (Part B) services; the remainder was for inpatient (Part A) care (Sherman, 1996). Inpatient mental health care provided in a psychiatric hospital is capped at a lifetime of 190 days, though inpatient treatment provided in general hospitals does not fall under the lifetime limit. Medicare does not cover assertive community treatment, psychosocial rehabilitation, or intensive case management services for individuals with severe mental illness.

Until 1987, Medicare covered only an annual maximum of 50% of the first $500 of a beneficiary's expenses for outpatient psychological treatment and follow-up diagnostic services. This $250 annual payment cap was increased to $1,100 with the passage of the Omnibus Budget Reconciliation Act of 1987. Enhancement of Medicare reimbursement of mental health services occurred with the enactment of the Omnibus Budget Reconciliation Act of 1989 (OBRA 1989), which removed the annual payment limit and provided for Medicare recognition of psychologists as providers of mental health care. However, Medicare continues its discriminatory practice of reimbursing only 50% of outpatient mental health treatment costs, while reimbursing general ambulatory health care costs at the rate of 80% (Sherman, 1996). Notwithstanding the improvements promulgated by recent legislative mandates, the 50% cost-sharing liability undoubtedly continues to serve as a barrier to mental health treatment for older adults

lacking Medicaid or private supplemental ("Medigap") insurance coverage. Currently, three out of four Medicare beneficiaries lack Medigap coverage (General Accounting Office, 2001).

In addition to discriminatory legislative requirements, restrictive regulatory policies and administrative practices have considerably limited Medicare beneficiaries from receiving, and practitioners from providing, mental health treatment (Karlin & Duffy, 2004). Such barriers include overly-restrictive mental health local medical review policies (LMRPs) that are often inconsistent with medical science and clinical practice, as well as narrow LMRP interpretations by Medicare carriers (Karlin & Duffy, 2004). LMRPs are developed by insurance carriers that contract with the Medicare program to administer Medicare Part B claims. These policies delineate requirements for "medical necessity," which is required for Medicare claim reimbursement, though they must be consistent with clinical science and accepted practice.

In recent years, there has been some cause for optimism regarding the delivery of mental health services to older adults. The last two decades have witnessed tremendous developments that have potentially had significant positive impact on geriatric mental health care access and availability. Such developments include, but are not limited to, increased knowledge of mental health and aging, expanded federal reimbursement for geriatric mental health services, the establishment of the federal block grant program requiring that CMHCs provide specialized mental health services to older adults, the development of evidence-based geropsychological treatments (as noted above), decreased professional stigma toward elderly individuals, and increased interest within

the psychological community to incorporate more older adults into clinical practice (American Psychological Association, 1999). In addition, there is evidence that older adults today are more accepting of mental health treatment. A recent study of older medical patients' views toward psychological services found that 79% of those surveyed would use a variety of psychological services (Areán, Alvidrez, Barrera, Robinson, & Hicks, 2002). Other studies have found that some older adults prefer psychotherapy to medication when given a choice between treatments (Landreville, Landry, Guerette, & Matteau, 2002; Rokke & Scogin, 1995).

The foregoing developments notwithstanding, the degree to which changes in service access have actually translated into increased utilization of mental health care by older adults is largely unknown. Unfortunately, there has been very little research devoted to mental health care utilization by older adults in the last two decades. We cannot assume that older adults are finding their way into the psychotherapy room and receiving treatment. If the findings of one of the only recent large-scale studies examining geriatric mental health care utilization are any indication, underutilization of mental health services by the elderly is enduring and substantial (Karlin & Norris, in press). That study, which examined public mental health service use, found that only 5% of adults initiating mental health services at CMHCs in Texas in 1999 were 60 or older, though that age cohort represents one-quarter of the state adult population. Additional data on geriatric mental health care utilization in the private and public sectors are urgently needed.

Correlates of Mental Health Service Use

Little as we know regarding the rates at which today's older adults utilize mental health services, even less is known regarding the correlates of service use in this population. Previous studies examining characteristics of mental health clients have focused on younger populations. This research has consistently found women to be more likely than men to seek mental health treatment (Leaf et al., 1985; Vessey & Howard, 1993; Wells, Manning, Duan, Newhouse, & Ware, 1986), and also to make significantly more mental health visits than their male counterparts (Wells, Manning, & Benjamin, 1986; Williams, Diehr, Drucker, & Richardson, 1979). In addition, several studies have found insurance coverage and lower cost-sharing requirements to be positively related to mental health care use, though a consistent pattern has not been found (Feinson & Popper, 1995; Frank & McGuire, 1986; Goldman & Taube, 1988; Manning, Wells, Duan, Newhouse, & Ware, 1986). Previous studies have consistently found minorities to utilize mental health services considerably less frequently than Caucasians, both in terms of likelihood of use (Diehr, Williams, Martin, & Price, 1984; Kessler et al., 1994; Taube, Kessler, & Burns, 1986) and number of visits (Diehr et al., 1984; Kessler et al., 1994; Lasser et al., 2002; Williams et al., 1979). However, Horgan (1986) found that when financial obstacles to mental health treatment are removed, the differential effect of ethnicity on the degree of utilization disappears. A recent study by Diala et al. (2000) found that Blacks had more positive attitudes toward mental health services than Caucasians prior to seeking services, but had less favorable attitudes than Caucasians following utilization.

Research also reveals that mental help-seekers tend to be better educated and unmarried (Leaf et al., 1985). High levels of psychological distress are strongly related to likelihood of mental health service use and intensity of treatment (Leaf et al., 1985; Rickwood & Braithwaite, 1994). Equally or more important than actual need for mental health care appears to be perceived need for treatment (Leaf et al., 1985; Rost, Fortney, Fischer, & Smith, 2002). Further, positive attitudes toward mental health care have also been found to be significantly related to utilization (Leaf et al., 1985).

Both structural and functional characteristics of the social network have been found to be related to mental health care use. Significant structural characteristics include size, frequency of contact, and duration of the network, whereas functional characteristics include the amount of physical and emotional support the network provides the individual (Rost, Fortney, Fischer, & Smith, 2002). Social networks may affect perceived need for care and, consequently, service initiation by providing feedback on symptoms or conditions, by motivating individuals to seek treatment, or by providing substitute services (Golding & Wells, 1990; Rost, Fortney, Fischer, & Smith, 2002; St. Clair, Smeriglio, Alexander, & Celentano, 1989; Sherbourne, 1988). Having a larger social support network has been associated with increased attendance at outpatient psychotherapy sessions (Mitchell, 1989). Moreover, the significant positive relationship between social contact and mental health has been well-documented (Reis, Collins, & Berscheid, 2000). Finally, several studies have found living in urban areas to be more likely to seek mental health services than those residing in rural regions, ostensibly due to both access and attitudinal barriers in rural areas (Bane, Rathbone-McCuan, &

Galliher, 1994; Goldstrom & Manderschied, 1982; Landerman, Burns, Swartz, Wagner, & George, 1994).

Only a few small-scale studies have examined, specifically, older adult users of mental health services. One study examining older clients of a private geriatric mental health outpatient clinic found that women accounted for 75% of the 164 clients analyzed, Caucasians comprised 94% of the client population, and 46% of clients were married (Speer, Williams, West, & Dupree, 1991). In their study of mental help-seeking by 120 older adults (defined as age 55+), Phillips and Murrell (1994) found utilization to be associated with poorer psychological well-being, more physical health problems, higher levels of unpleasant stressful events, and perceived lack of social support. Furthermore, there is evidence that the current cohort of older rural residents may be no less likely than their urban counterparts to receive mental health services when such services are available (Chumbler, Cody, Booth, & Beck, 2001; Karlin & Norris, in press). Greater knowledge of the factors that influence mental health care utilization by *older* adults, specifically, is greatly needed, particularly considering the unique generational, physical, and psychological characteristics of the elderly population. In fact, researchers have suggested that the factors that influence mental health service use by younger adults may do so differently with older adults, and that there may be uncommon factors influencing utilization by the elderly (Phillips & Murrell, 1994).

Study Goals

The first goal of the present study was to examine the utilization of outpatient mental health services by community-dwelling older and younger adults. In addition to

identifying the degree and level of service use, the study examined the extent to which various demographic, social, and clinical factors are related to the use of mental health services by older versus younger individuals, applying the Andersen-Newman model of health service utilization (Andersen & Newman, 1973). The Andersen-Newman framework is a widely-used and comprehensive model for explaining and predicting the utilization of health services (Andersen, 1995; Andersen & Newman, 1973). Since its development, its application has been extended to the utilization of various services beyond general medical care, including social services (Bass, Looman, & Ehrlich, 1992), senior center services (Lai, 2001), home health services (Bass & Noelker, 1987), dental care (Kiyak, 1987), and mental health services (Padgett, Patrick, Burns, & Schlesinger, 1994).

According to the Andersen-Newman model, health service use is influenced by three sets of factors: predisposing factors, enabling factors, and need factors. Predisposing variables are factors that affect one's predisposition or propensity to use services, independent of personal circumstances and experiences. These typically include sociodemographic variables, such as age, gender, ethnicity, level of education, and employment status. Enabling variables are factors that facilitate or impede service use, including urbanicity, living arrangement, household composition, income level, and insurance status. It is significant to note that the Andersen-Newman model has been criticized for not accounting for social network and social contact variables (Bass & Noelker, 1987; Guendelman, 1991). Accordingly, the current study expanded upon the traditional Andersen-Newman model by including social support network, which has

been found in the general population to have significant influence on mental health (Reis, Collins, & Berscheid, 2000) and behavioral health service utilization (Birkel & Reppucci, 1983; Bosmajian & Mattson, 1980). Finally, need variables are factors relating to the need for care, including perceived or evaluated health status, chronic disability, and psychological well-being.

The application of the Andersen-Newman model in the current study offers several benefits and provides for a more conceptually sophisticated examination than some previous mental health service utilization studies (see e.g., Wu, Ringwalt, & Williams, 2003). For one, the model's multi-factor design offers particular value for examining mental health services, as the factors underlying behavioral health service use are inarguably varied and often inter-related. Furthermore, the model is particularly suitable for analyzing service use by older adults, who frequently face several (often unique) access barriers implicating predisposing, enabling, and need factors. In fact, the Andersen-Newman model has been applied in studies examining, specifically, older adult service utilization in health care, social service, home health care, dental care, and senior center settings (Bass & Noelker, 1987; Beekman et al., 2002; Coulton & Frost, 1982; Kiyak, 1987; Krout, 1983; Lai, 2001). Further rendering the model especially appropriate for the current study is the fact that it was initially developed for use in analyzing national survey data (Andersen & Anderson, 1967).

In addition to examining service utilization, a further goal of the study was to identify the nature and degree of mental health need in older and younger adults, as well as to identify predictors of mental illness in both age groups. Specifically, the study

sought to provide estimates of both nonspecific serious mental illness and specific mental health conditions, and to identify demographic, social, and clinical correlates of SMI. Among other benefits, the identification of elderly individuals in need of mental health treatment is essential for putting the utilization findings into context and for improving service delivery.

The study further sought to examine the degree of unmet mental health need in older versus younger populations and to identify various reasons older and younger adults report for not seeking mental health services when there was a subjectively identified need for treatment. The final goal of the paper was to examine the relationship between age and perceived benefit of mental health care (among those receiving treatment) on ability to manage daily activities.

Research Questions

1. What is the prevalence of serious mental illness (SMI) and specific mental health conditions among older (65+) versus younger (18-64) community-dwelling individuals, and are there age differences in mental health prevalence rates?
2. What are some demographic, social, and clinical correlates of SMI in older and younger adults?
3. To what extent do older versus younger community-dwelling individuals currently utilize outpatient mental health care?
4. How does the rate of mental health care utilization by older and younger adults differ across service settings?

5. What predisposing, enabling, and/or need factors predict any mental health care use by older and younger adults?
6. What predisposing, enabling, and/or need factors predict level of mental health care use by older and younger adults?
7. To what extent do older versus younger adults report having needed, but not receiving, mental health care?
8. What factors do older versus younger adults identify as underlying their failure to receive mental health care when there was a subjectively identified need for treatment?
9. What is the relationship, if any, between age and the perceived benefit of mental health treatment on one's ability to manage daily activities?

METHOD

Data Source and Participants

The study drew upon data from the 2001 National Survey on Drug Use and Health (NSDUH), formerly known as the National Household Survey on Drug Abuse. The NSDUH, conducted by the Substance Abuse and Mental Health Services Administration (SAMHSA), is designed to provide data on the prevalence and correlates of drug use and patterns of treatment utilization on non-institutionalized individuals age 12 and older throughout the United States. In addition, the 2001 version includes several variables assessing mental health problems, serious mental illness (SMI), and mental health care use. The 2001 NSDUH public use file includes 55,631 individuals (unweighted). The study included only individuals 18 years of age and older (unweighted n = 38,132). The unweighted sample size for younger adults was 35,693. The unweighted sample size for older adults was 2,439. The survey incorporates a nationally representative independent multistage probability sample for each of the 50 states and the District of Columbia. The 2001 NSDUH was administered using computer-assisted interviewing methods to promote privacy, confidentiality, and honest responding. The survey was conducted January through December 2001. Additional information on the survey design and data collection procedures is available elsewhere (U.S. Department of Health & Human Services, 2001).

Statistical Analyses

Due to the complex multistage probability sampling design of the 2001 NSDUH, statistical analyses were conducted using Survey Data Analysis (SUDAAN) Software

for the Statistical Analysis of Correlated Data version 8.0.2 (Research Triangle Institute (RTI), 2001), a statistical package designed specifically for complex survey data. SUDAAN uses Taylor series linearization (Binder, 1983) to compute unbiased estimates of population parameters and standard errors taking the survey design into account (Shah, Barnwell, & Becker, 1996). This robust estimation procedure corrects for heteroscedasticity and lack of independence of observations that typically result from stratified cluster sampling. Most other commonly-used statistical packages do not account for complex sample designs when computing variance estimates and test statistics, leading to biased estimates (Binder, 1983). For more information on cluster sampling and sample weights in complex surveys, and on the importance of accounting for the sampling design in epidemiological studies, the reader is referred to Korn and Graubard (1991). RTI, the publisher of SUDAAN, also conducts the NSDUH for SAMHSA.

The study first examined and compared the prevalence of SMI in older (65+) and younger (18-64) adults in the NSDUH. SMI is assessed in the NSDUH using the K6 scale (Kessler et al., 2002), which is new to the 2001 version of the survey. The K6 scale is a nonspecific measure of psychological distress with serious impairment initially developed for use in the U.S. National Health Interview Survey (Kessler et al., 2002). The scale is used to identify SMI, defined as having at some point during the past year a diagnosable mental, behavioral, or emotional disorder meeting DSM-IV criteria, other than a substance abuse disorder, that resulted in serious impairment (GAF < 60) (Kessler et al., 2003). Kessler and colleagues (2002) found the K6 scale to precisely discriminate

between community cases and non-cases of DSM-IV disorders. Moreover, Furukawa and colleagues (2003) recently found the scale to be superior to the 12-item version of the General Health Questionnaire (GHQ-12; Goldberg & Williams, 1988), a widely-used screening measure in community settings for diagnosing specific psychological conditions, within a large national sample. SAMHSA selected the K6 scale for inclusion in the 2001 NSDUH to assess SMI following a validation study by Kessler et al. (2003) comparing several screening scales. A continuous variable (SMI_SUM) ranging from 0 to 24, representing the total score on the K6 scale, is included in the NSDUH to identify respondents' level of mental illness. Respondents are classified as having a serious mental illness on a dichotomous indicator variable (SMI) in the NSDUH if their SMI_SUM value is 13 or greater, which Kessler et al. (2003) found to be the optimal cut-point, achieving total classification accuracy of .92 in the validation sample.

To identify those factors in older adults most related to serious mental illness (and presumably need for treatment), bivariate and multiple logistic regression analyses were conducted on older adults, with SMI as the dependent variable. The independent variables in the logistic regression models were gender, ethnicity (white, non-white), marital status (married, not married), education level (< high school, high school graduate, > high school), employment status (full-time or part-time, unemployed), household composition (live alone, live with one or more others), level of social support (number of friends that really like or care about individual), urbanicity (segment in metropolitan statistical area (MSA) with ≥ 1 million persons, segment in MSA with < 1 million persons, segment not in a MSA), personal income, self-rated health

(excellent/good/very good, fair, poor), and having an alcohol or other substance-related disorder. The 2001 NSDUH included a series of questions designed to assess substance abuse and dependence, based on the criteria for substance abuse and dependence in the DSM-IV. A separate multiple logistic regression analysis, including each of the predictors listed above (except Medicare coverage, which is predominantly for older Americans) and the same dependent variable, was conducted on younger individuals for comparison purposes. All regression-based *F*-tests are based on adjusted Wald tests, which are more conservative than the liberal Wald test and often preferred for analysis of data obtained from complex survey designs (Korn & Graubard, 1990).

In addition to broadly examining serious mental illness, the study also examined past-year prevalence of specific mental health problems. The 2001 NSDUH included several questions assessing the presence of symptoms closely resembling symptoms of specific mental health conditions in the DSM-IV. Diagnostic algorithms approximating DSM-IV disorder symptom requirements were developed for the present study and adapted from the scoring rules from the CIDI-SF (Kessler, Andrews, Mroczek, Ustun, & Wittchen, 1998), a truncated version of which served as the basis for most of the mental health items in the 2001 NSDUH (Walters, Kessler, Nelson, & Mroczek, 2002). Six mental health categories (hereafter referred to as "syndromes") approximating major depression, panic attack, social phobia, generalized anxiety disorder, agoraphobia, PTSD, and mania were created. Definitions of each syndrome and the items making up each syndrome are listed in the Appendix. Chi-square (SUDAAN CHISQ) tests based

on observed minus expected values, analogous to the Pearson chi-square for nonsurvey data, compared cohort prevalence rates.

The study next examined and compared mental health care utilization by older and younger adults and identified predictors of service use, applying the Andersen-Newman model of health service utilization. Bivariate and multiple logistic regression analyses were conducted to identify predictors of any outpatient mental health service use, with separate regression models fit for older and younger adults. Independent variables included predisposing, enabling, and need factors. Predisposing factors included gender, ethnicity, marital status, education level, and employment status. Enabling factors included household composition, level of social support, urbanicity, personal income, Medicare coverage (for older adults only), Medicaid coverage, and private health insurance. Need factors included self-rated health, having one or more mental health syndromes (major depression, panic attack, social phobia, generalized anxiety disorder, agoraphobia, PTSD, or mania), and having an alcohol or other substance-related disorder. Only major depression and panic attack were included in the mental health syndrome predictor for older adults due to the low prevalence of the other syndromes. The dependent variable was the use of outpatient mental health care in the past 12 months. Outpatient mental health care included treatment for mental health or emotional problems (other than alcohol or substance use problems) in an outpatient mental health center, a private therapist's office, a non-clinic doctor's office, an outpatient medical clinic, or a day treatment program. Log-likelihood chi-square (SUDAAN LLCHISQ) tests, which are computed based on the log odds ratios,

compared cohorts on the likelihood of mental health service use by specific service setting.

A statistically significant finding for the mental health syndrome predictor in the logistic regression analyses examining any past-year mental health service use was followed by additional (bivariate and multiple) logistic regression analyses to determine the specific syndrome correlates (and the magnitude thereof). In the follow-up analyses, each specific mental health syndrome was included as an independent variable, and any mental health service use was the dependent variable. The simultaneous solutions included all other predisposing, enabling, and need variables listed above as predictors to control for their effects.

Before performing each of the regression analyses in the study, the author devoted careful attention to model selection and diagnostics. Independent variables, along with their regression coefficients and standard errors, were inspected for possible multicollinearity. Initially, zero-order correlations among all pairs of independent variables in each of the regression models were calculated and examined. In addition, the variance inflation factor (VIF) for each independent variable was computed. Variables that appeared to be problematic due to multicollinearity or to low response rates were either excluded from the final model or recoded, as appropriate. The VIFs for each of the final regression models entered were below 3.5, well below the recommended cutoff threshold of 10 (Hair, Anderson, Tatham, & Black, 1995; Myers, 1990).

After examining predictors of any mental health care use, linear regression analyses were fit to identify predictors of the magnitude of mental health service utilization. The independent variables included in the analyses included the same predisposing, enabling, and need factors used in the logistic regression analyses. As in the logistic regression analyses, both bivariate and multiple regression analyses were conducted. Only individuals that received mental health treatment in the past year were included in the analyses. The dependent variable in the linear regression analyses was the number of past-year outpatient mental health care visits. As in the previous regression analyses, additional linear regression analyses followed statistically significant findings for the mental health syndrome predictor variable to determine the specific syndrome correlates of level of service use.

Following the utilization analyses, the study examined and compared the rate of subjectively-identified unmet mental health need among older and younger adults. The NSDUH included a question asking respondents, "During the past 12 months, was there any time when you needed mental health treatment or counseling for yourself but didn't get it?" Chi-square (SUDAAN CHISQ) tests compared cohort responses on this item. In addition, factors identified as underlying the failure to receive needed treatment were compared across age groups. Several potential reasons for not seeking treatment were queried, including lack of affordability, concern about the opinion of others, concern about effect on employment, lack of insurance coverage, concerns about confidentiality, and fear of commitment.

Lastly, the study examined for age group differences on self-perceived benefit of mental health treatment. The NSDUH asked respondents that received mental health care during the past year how much the treatment improved their ability to manage daily activities. Possible responses included "none," "a little," "some," "a lot," or "a great deal." Each response was converted into a numerical value ("none" = 0; "a little" = 1, "some" = 2, "a lot" = 3, "a great deal" = 4), and an analysis of variance (ANOVA) compared age group differences in self-perceived benefit from treatment. In this analysis, age group (18-25, 26-34, 35-49, 50-64, 65+) was the independent variable and perceived benefit from treatment was the dependent variable. The younger adult cohort was broken down into subcategories in this analysis to identify possible within-group differences, in addition to differences between the older and younger cohorts. For example, middle-aged individuals may perceive greater benefit from treatment than their younger counterparts due to the greater tendency toward introspection and self-examination in mid-life, as well as to perhaps greater experience with psychotherapy. Following the ANOVA, post-hoc Bonferroni-corrected *t*-tests were conducted to determine specific group differences. The corrected .05 significance level for the Bonferroni tests was .05/5 = .01.

RESULTS

The demographic, social, and health characteristics of the older and younger cohorts are summarized in Table 1. All percentages reported in Table 1 and hereafter reflect weighted data. There were statistically significant differences in the distribution of older versus younger adults on the following characteristics: gender ($\chi^2(1, N = 202{,}035{,}838)) = 20.5, p < .0001$), ethnicity ($\chi^2(1, N = 202{,}035{,}838) = 85.2, p < .0001$), education level ($\chi^2(1, N = 202{,}035{,}838) = 192.5, p < .0001$), employment status ($\chi^2(1, N = 202{,}035{,}838) = 1140.1, p < .0001$), household composition ($\chi^2(1, N = 201{,}293{,}897) = 233.0, p < .0001$), social network size ($\chi^2(2, N = 199{,}225{,}429) = 13.6, p = .001$), urbanicity ($\chi^2(2, N = 202{,}035{,}838)) = 22.04, p < .0001$), personal income ($\chi^2(2, N = 202{,}035{,}838)) = 160.11, p < .0001$), Medicare coverage ($\chi^2(1, N= 200{,}889{,}881) = 1735.5, p < .0001$), Medicaid coverage ($\chi^2(1, N = 200{,}328{,}417) = 67.6, p < .0001$), private health insurance coverage ($\chi^2(1, N = 200{,}710{,}719) = 49.5, p < .0001$), and health status ($\chi^2(2, N = 201{,}960{,}332) = 209.0, p < .0001$). Examination of the observed distributions indicates that a significantly greater proportion of older than younger adults were female, Caucasian, unemployed, and living alone. In addition, a greater proportion of older adults had 4 or more close friends, lower income, Medicare coverage, and Medicaid coverage, whereas a greater proportion of younger adults had private insurance. Furthermore, a greater proportion of older than younger adults lived in rural areas (non-MSAs), whereas younger adults were more concentrated in large urban areas. As Table 1 further indicates, a disproportionately higher percentage of older than younger adults reported being in fair or poor health.

Mental Health Need

Estimated one-year prevalence estimates of SMI and specific mental health syndromes are listed in Table 2. Overall, mental health need was substantially lower in the older cohort. Older adults were significantly less likely than younger adults to be classified as likely having SMI ($F = 44.4$, $df = 1$, $p < .001$). The estimated one-year prevalence rates of SMI for older and younger adults were 3.4% and 8.1%, respectively. With respect to specific mental health syndromes, only 7.9% of older adults versus 15.3% of younger adults were found to likely have at least one of the non-substance-related mental health conditions included in the study. The estimated one-year prevalence rate of substance abuse or dependence was 1.5% for older adults and 8.2% for younger adults. As Table 2 further reveals, a significantly lower proportion of older than younger adults had one or more mental health syndromes approximating major depression, panic attack, social phobia, PTSD, mania, or substance abuse or dependence. There was no significant difference in the proportion of older and younger adults with agoraphobia. It is noteworthy that the prevalence rate obtained for major depression in older adults (1.9%) – the disorder for which recent data are most available – is in line with ECA estimates (1%-2%), as well as other community prevalence estimates, which have ranged from 1% to 4% (Beekman, Copeland, & Prince, 1999; Blazer, Hughes, & George, 1987; Blazer & Williams, 1980; Regier et al., 1988a; Steffens, Skook, & Norton, 2000).

The results of the logistic regression analyses examining predictors of SMI for older and younger adults are reported in Tables 3, 4, and 5. The results of the bivariate

models on older adults revealed significant associations between SMI and each of the following: marital status, education, employment status, size of social network, personal income, health status, and having a substance disorder (see Table 3). The results of the simultaneous model on older adults revealed that, after controlling for the other variables in model, SMI was strongly associated with health status and having a substance disorder. The partial effects of marital status, education, employment status, level of social support, and personal income were not statistically significant. As Table 4 reveals, older adults reporting to be in poor health were more than four times more likely than those in good to excellent health to be classified as likely having SMI, even after controlling for all other predisposing, enabling, and need variables. Older adults with a substance disorder were, on the whole, eight times more likely than those without be classified as likely having SMI.

Among younger adults, all bivariate associations with SMI were significant (see Table 3). All independent variables, with the exception of education and urbanicity, remained statistically significant in the simultaneous solution. Table 5 presents the significance test results and odds ratios for the regression coefficients of each of the categories of the independent variables. These results reveal that, after controlling for all other predictors, SMI was positively associated with being female, Caucasian, not married, unemployed, having limited social support, low personal income, poorer health, and having a substance disorder. Younger females were almost two times more likely than younger males to be classified as likely having SMI. Further, younger adults with incomes less than $20,000 were twice as likely as those with incomes of at least $50,000

to have SMI. Social support was strongly associated with SMI, second only to need factors. Individuals with no more than one close friend were almost three times more likely than those with at least four close friends to be classified as likely having SMI. Similar to the findings reported above with respect to older adults, health status and having a substance disorder were the strongest predictors of SMI among younger adults. Younger adults in poor health, and those with a substance disorder, were, respectively, 3.5 times more likely than those in good to excellent health and those without a substance disorder to be classified as likely having SMI.

Mental Health Care Utilization

Any service use. Older adults were significantly less likely than younger adults to receive any outpatient mental health treatment in the past year (see Table 6). Younger adults were approximately three times more likely than their older counterparts to utilize mental health care (*OR* = 2.88, 95% CI (2.06-4.01)). Only 2.5% of older adults received outpatient mental health treatment, compared to 7.0% of younger adults.

Close to 9% of older adults classified as likely having SMI, and 10% of older adults having at least one mental health syndrome included in the study, received mental health care, versus approximately 3% classified as likely not having SMI and 2% of those not having any of the mental health syndromes. In contrast, 32% of younger adults classified as likely having SMI, and 25% of younger adults with at least one mental health syndrome, received mental health care, versus approximately 5% of those classified as likely not having SMI and less than 4% of those not having a mental health syndrome.

Rates of mental health care use by older and younger adults by specific service setting are presented in Table 6. Older adults were significantly less likely than their younger counterparts to utilize mental health care in an outpatient mental health center, in a private therapist's office, and in a non-clinic doctor's office. Older and younger adults received mental health care at similarly low rates at outpatient medical clinics, day treatment centers, and other outpatient facilities.

Table 7 presents the significance test results of the overall independent variables included in the logistic regression analyses examining correlates of any mental health service use. In the bivariate models fit on older adults, service use was associated with need factors only, including health status and having at least one mental health syndrome. Both health status and having at least one mental health syndrome remained statistically significant in the simultaneous model. Having Medicare coverage was marginally statistically significant. Table 8 presents the results of the significance tests and odds ratios of each of the categories of the individual regression coefficients in the logistic regression analyses for older adults. Older adults in poor health were, on the whole, three times more likely than those in good to excellent health to receive any mental health care. Elderly individuals with at least one mental health condition were almost six times more likely than those without to utilize mental health services. Follow-up logistic regression analyses revealed that panic attack and, especially, major depression, were strongly associated with mental health service use in both bivariate and multiple regression models (see Table 9).

Among younger adults, there were significant bivariate associations between each of the independent variables, other than urbanicity and mental health service use (see Table 7). In the simultaneous solution, all independent variables were statistically significant, with the exception of social support and urbanicity. Personal income was marginally statistically significant. Table 10 presents the regression coefficients and odds ratios for each of the categories of the independent variables. After controlling for all other predictors, women were 1.5 times more likely than men to receive mental health treatment. Younger adults in fair or poor health, as well as those with greater than a high school education, were more than 1.5 times more likely than those in good to excellent health and those with no more than a high school education to receive mental health care. Caucasians were almost twice as likely as minorities to receive treatment. Furthermore, individuals on Medicaid were almost 2.5 times more likely to utilize mental health services. Similar to the results reported above with respect to older individuals, mental health need was far and away the strongest predictor of mental health service use by younger adults. Younger adults with at least one mental health syndrome were 7.5 times more likely than those without to seek treatment. The results of the follow-up analyses to mental health need are reported in Table 11. As can be seen, all mental health syndromes had significant bivariate associations with service use. After controlling for all other predisposing, enabling, and need variables in the model, all mental health syndromes, other than social phobia, remained statistically significant correlates of treatment utilization. Similar to the findings with respect to the older adults, major depression was the strongest mental health need predictor of service use,

while panic attack was the second strongest mental health need predictor. Social phobia was not statistically significant after controlling for other variables, nor was substance abuse/dependence.

Level of service use. The mean number of mental health visits among those receiving mental health treatment was lower among older than younger adults, but not significantly so. Older adult users of mental health care made an average of 6.9 mental health visits, versus 7.8 visits for younger adult users. The variability in the average level of service use was greater for older (SE = 1.27) than for younger (SE = .25) adults.

Mean level of service use did not differ as a function of having serious mental illness for older adults (M = 6.1, SE = 2.20 and M = 7.1, SE = 1.49, for older adults with and without SMI, respectively), $t(900) = 2.66$, $p = .71$. For younger adults, on the other hand, there was a statistically significant difference in mean level of service use between the two groups, with the seriously mentally ill making significantly more visits on average (M = 9.4, SE = .43) than those without SMI (M = 6.7, SE = .28), $t(900) = 5.41$, $p < .0001$.

Table 12 presents the significance test results of the overall variables included in the linear regression analyses examining predictors of magnitude of mental health service use among older and younger mental health care users. In the bivariate models fit on older individuals, level of education, Medicare coverage, and health status were statistically significant. Urbanicity and Medicaid eligibility were marginally statistically significant. After controlling for the effects of the other independent variables in the simultaneous model, urbanicity, Medicaid eligibility, having one or more of mental

health syndromes, and having a substance disorder were statistically significant. Household composition was marginally statistically significant. Level of education, Medicare eligibility, and health status were no longer statistically significant. Table 13 presents the unstandardized and standardized regression coefficients and significance test results for each level of the independent variables included in the linear regression analyses for older adults. As Table 13 reveals, having Medicaid and living in a large urban area were strongly related to increased service use. There was a more moderate relationship between having one or more mental health syndromes and increased use of services. Having one or more substance disorders was moderately related to decreased level of service use. Follow-up analyses to the significant mental health need predictor revealed that neither major depression nor panic attack was significantly related to level of service use.

Among younger adults, there were significant bivariate associations between level of mental health service use and marital status, education, employment status, living with others, urbanicity, Medicaid eligibility, and likely having one or more mental health syndromes (see Table 12). Personal income was marginally statistically significant. With the exception of living with others, all of the statistically significant predictors from the bivariate models remained significant after controlling for the effects of all other predisposing, enabling, and need factors. Table 14 presents the unstandardized and standardized regression coefficients and significance test results for each level of the independent variables included in the linear regression analyses fit on younger adults. As can be seen, having greater than a high school education was most

strongly related to increased use of mental health services. Increased service use was also related, to a lesser degree, to not being married, being unemployed, living in a large urban area, being eligible for Medicaid, and having one or more mental health syndromes. Follow-up analyses to identify specific mental health syndrome correlates of level of utilization revealed significant bivariate associations between treatment magnitude and each of the mental health syndromes (see Table 15). In the simultaneous solution, major depression, social phobia, GAD, and mania remained statistically significant predictors of increased utilization. Panic attack was marginally statistically significant, and agoraphobia and PTSD was not statistically significant.

Unmet Mental Health Need

Younger adults were seven times more likely than their older counterparts to report unmet mental health need, *OR* = 7.33, 95% CI (4.19-12.80). Less than 1% of older adults identified needing, but not receiving, mental health treatment in the past year, compared to approximately 5% of younger adults. Table 16 presents the rates at which various factors were identified by older and younger adults as contributing to unmet mental health need. As can be seen, the most frequent reason endorsed by older adults for not seeking needed mental health care was being unaware of where to go for services (27.7%). The most frequent reason endorsed by younger adults reporting unmet mental health need was lack of affordability (37.4%), which was the second most common reason endorsed by older adults (18.6%). The third most frequent reason endorsed by older adults was concern about the opinions of others (12.4%).

Self-Perceived Treatment Benefit

Overall, individuals reported that mental health services improved their ability to manage daily activities between "a lot" and "a great deal" ($M = 3.36$, Max = 4.00). The ANOVA examining the effect of age group (18-25, 26-34, 35-49, 50-64, 65+) on perceived benefit of mental health treatment was statistically significant ($F(4, 900) = 25.36$, $p < .0001$). Bonferroni-corrected post-hoc tests revealed that individuals age 18-25 reported significantly less benefit than all other age groups (see Table 17). An additional ANOVA, with demographic, social, and need variables entered as blocking variables, was conducted to determine whether the effect of age group on perceived benefit of mental health treatment remained after controlling for other characteristics. The effect of age group was statistically significant, $F(4, 900) = (9.23$, $p < .0001)$. Bonferroni-adjusted *t*-tests, again, revealed that individuals age 18-25 reported significantly less benefit than all other age groups. These findings may reflect the fact that young adults generally are less introspective and revealing than older individuals, and do not have a fully-formed identity. As a result, they may not be as committed to or engaged in the therapy process. In fact, the proportion of individuals age 18-25 that utilized any mental health treatment in the past year was significantly lower than the proportion of all other younger adults that reported using services (5.96% vs. 7.19%; $\chi^2(1, N = 1{,}637{,}941) = 14.00$, $p = .0002$), even though 18-25 year-olds had a significantly *higher* prevalence of SMI (11.87% vs. 7.30%; $\chi^2(1, N = 1{,}647{,}399) = 128.87$, $p < .0001$). In both ANOVAs, older adults were found to benefit from treatment at least as much as all other age groups (see Table 17).

CONCLUSION

The current study provides much needed national estimates of mental health need, service utilization and perceived treatment benefit among older adults, along with comparative data on younger individuals. In addition, the study identifies factors related to serious mental illness, any mental health treatment use, and level of service utilization in older and younger age groups. The findings reveal that older adults continue to use mental health services at substantially low rates. Older adults were three times less likely than their younger counterparts to receive mental health treatment. Only 2.5% of older individuals utilized any mental health service in the previous year, compared to 7.0% of younger adults.

Importantly, the study suggests that the large age difference in mental health care use may be partly explained by lower (subjective) mental health need in the older cohort. Psychopathology prevalence rates were considerably lower among older than among younger adults. Estimated one-year prevalence rates of SMI for older and younger adults were 3.4% and 8.1%, respectively. The overall prevalence rate of SMI (7.4%) documented in the current study is slightly higher than the estimate (6.2%) obtained by Kessler and colleagues (2001). Moreover, only 7.9% of older adults versus 15.3% of younger adults were found to likely have at least one of the non-substance-related mental health conditions included in the study. These estimates are virtually identical to those obtained by Klap et al. (2003) in a recent telephone survey of older and younger adults, based on the CIDI-SF. In that study, 7.9% of older (65+) and 14.9% of younger (18-64) adults were found to likely have a mental health disorder. With the exception of

agoraphobia, in which there was no statistically significant difference between cohorts, the prevalence rates of all specific mental health syndromes obtained in the current study were markedly lower in the older cohort, as was the prevalence of substance disorders.

The foregoing notwithstanding, the data suggest that the low rate of treatment utilization by the elderly cannot be attributed entirely to reduced mental health need, as service use was found to be quite low even among older adults with significant mental health impairment. Strikingly, fewer than 1 in 10 older adults estimated to have SMI in the past year received mental health care. This is three times lower than the corresponding rate in younger adults. Furthermore, whereas those with SMI were much more likely than those without SMI to use services in the younger cohort (32% with SMI vs. 5% without SMI), SMI did not have nearly as great an influence on service use in the older cohort (9% with SMI vs. 3 % without SMI). It is also worth noting that the average number of mental health care visits made by those with SMI was significantly greater than the number of visits made by those without SMI within the younger cohort (M = 9.4 vs. M = 6.7), but not within the older cohort (M = 6.1 vs. M = 7.1).

Need factors, including mental as well as physical health status variables, were clearly the strongest predictors of any mental health service use for older, as well as for younger, adults. This pattern is consistent with past general health care utilization research conducted on the elderly (Coulton & Frost, 1982; Evashwick, Rowe, Diehr, & Branch, 1984), as well as mental health care utilization research conducted on overwhelmingly younger populations (Andersen, 1995; Leaf et al., 1985; Mercier & Shelley, 1997). Predisposing and enabling factors had a greater impact on level of

treatment than on likelihood of any service use for older adults. Interestingly, mental health need was a stronger predictor of any mental health care use for younger adults, whereas physical health status was a stronger predictor of treatment for older adults. In both age groups, major depression was clearly the strongest mental health syndrome predictor of any service use, which is consistent with past research on mainly younger adults (Regier et al., 1993). Panic attack was the next strongest mental health syndrome predictor for both age cohorts. Mental health need was also related to increased magnitude of service utilization among older and younger adults. Health status was a significant correlate of any mental health care use, but not level of treatment. For both age groups, poor health was associated with greater likelihood of seeking mental health treatment, even after controlling for all other predisposing, enabling, and need factors.

An interesting pattern emerged with respect to urbanicity that is worth noting. For both older and younger adults, urbanicity did not have a meaningful impact on any mental health service use, though it did have an important impact on level of service use. In both age groups, increased level of utilization was associated with living in a large urban area. Thus, it may be that access difficulties make *continued* treatment formidable for individuals living in more rural areas.

Furthermore, given the significant findings with respect to Medicaid eligibility, which was second in effect size only to mental health need among significant predictors of any mental health care use for younger adults and also significantly related to increased level of service use for both age groups, it would be interesting to see how the impact of Medicaid status differs by state due to varying state policies (and severe

cutbacks in many states) on Medicaid coverage for mental health services (Nelson, 2002; Rowland, Garfield, & Elias, 2003); however, this could not be examined in the current study as state of residence information is not released by SAMHSA for confidentiality purposes.

Interestingly, the inverse relationship documented between level of treatment utilization and substance impairment for older adults is in the opposite direction of that found with respect to any mental health care use. This is unsurprising, as individuals with substance disorders often drop out of treatment due to low motivation for change or other reasons (Donovan & Rosengren, 1999), yet their symptoms and presentation to health care professionals, law enforcement officials, and others make it likely that they will initiate or be referred for treatment. This may be especially likely among older substance users who may be less able than their younger counterparts to cope with the sensory and other deficits associated with substance abuse.

It is noteworthy (and perhaps encouraging) that, among younger adults, there was no effect for gender on magnitude of service utilization, though there was a significant effect for gender on any mental health service use, with females found to be more likely to use services than males. This pattern parallels that documented by others (Watts & Scheffler, 1986; Wells et al., 1982). In addition, the finding of a statistically significant (and rather strong) relationship between health status and any mental health care use, but no effect for level of utilization, is consistent with the findings of past investigations (Horgan, 1986; Taube, Kessler, & Burns, 1986; Wells et al., 1982).

Furthermore, the study identified significant correlates of mental health need among older, as well as younger, adults. Serious mental illness in the elderly was found to be strongly related to poor health status and having a substance-related disorder, even after controlling for demographic and social variables. Older adults in poor health were five times more likely than those in good to excellent health to be found to likely have SMI. Moreover, poor health and substance-related impairment were the strongest predictors of SMI in younger adults. Younger adults in poor health, and those with a substance disorder, were 3.5 times more likely than those in good to excellent health, and those without a substance disorder, to be classified as having SMI. Having a small social support network was also strongly related to SMI in younger adults. Being female, Caucasian, not married, and having limited personal income were also significant, albeit more moderate, correlates of SMI in the younger cohort.

The finding that older recipients of mental health treatment made, on average, fewer visits than their younger counterparts is consistent with past research (Olfson & Pincus, 1994), though the gap documented in the current study is smaller, which may, in part, reflect the current availability of mental health treatments designed and empirically established specifically for older patients, as well as expanded Medicare coverage of mental health services. Among the most optimistic findings of the study, which may in fact contribute to the foregoing result, are the findings relating to older mental health care users' perceptions of received mental health treatment, something largely unknown prior to this study. Significantly, older mental health care users reported that mental health treatment considerably improved their ability to manage daily activities. In fact,

older adults benefited from treatment as much or greater than all other age groups. This finding provides subjective support for the use of mental health treatments to supplement objective empirical data demonstrating the efficacy of mental health interventions with the elderly (Gerson, Belin, Kaufman, Mintz, & Jarvik, 1999; Pinquart & Sorensen, 2001; Scogin & McElreath, 1994).

As anticipated, individuals 18-25 reported significantly less benefit from treatment than all other age groups, and their rate of any mental health care use was significantly lower than that of all other younger adults (even though 18-25 year-olds had a significantly higher prevalence of SMI), which is consistent with past research from the ECA program documenting lower rates of outpatient mental health care utilization by individuals age 18-24 (Shapiro et al., 1984).

Very few older adults reported having needed but not receiving mental health care, which is quite noteworthy in light of the low rate of treatment, particularly given the fact that perception of need is necessary for service use and the fact that need was the strongest predictor of mental health treatment in the current study (though, interestingly, less strong for older than younger adults). Thus, for some older adults, lack of service use may, at least in part, have been a function of limited *perceived* need, as opposed to actual need. This is consistent with research demonstrating that many older adults fail to recognize and link psychological symptoms to mental illness (Yang & Jackson, 1998), as well as the contention of some researchers that older adults tend to under-report mental health symptoms (Blazer, George, & Hughes, 1991; Smyer & Qualls, 1999). This distinction is also consistent with Klap et al.'s (2003) recent finding that older

adults with psychological disorders were less likely than their younger counterparts to perceive a need for treatment. Even among younger adults, recognition of mental health problems is a significant barrier to accessing treatment (Regier et al., 1988b). It is also possible that the low report of mental health problems by older adults was influenced by stigma toward mental illness and mental health treatment (Klap, Unroe, & Unützer, 2003). In fact, in their review of mental health care delivery in the United States, Howard et al. (1996) declared, "The mental health service provision system continues to do a poor job in eliminating the barriers of stigma and ignorance about the benefits of mental health treatments (p. 699)." This is especially true with respect to older adults (Karlin & Duffy, 2004).

Among older adults that identified having unmet mental health need in the past year, the most frequent contributing factor was being unaware of where to go for services, which is consistent with accounts of limited perceived availability of mental health services among older adults (Rost, Fortney, Fischer, & Smith, 2002). In fact, a recent study found that familiarity with mental health services was the factor most related to likelihood of mental health service use within a group of community-dwelling older adults (Robertson & Mosher-Ashley, 2002). Accordingly, efforts should be taken at local and national levels to increase perceived need and perceived service availability, including educational campaigns focusing on mental health in late life and available services and resources (Klerk, Huijsman, & McDonnell, 1997). Unfortunately, perceived need and perceived service availability have been largely neglected aspects of geriatric mental health care.

There are several limitations of the study that bear mentioning. First, the study included only community-dwelling individuals. Individuals in institutional settings (e.g., hospitals, nursing homes, etc.) were excluded from the NSDUH. Undoubtedly, a different picture of mental health need among older adults would emerge in institutional settings, where the prevalence of psychopathology among the elderly is substantially higher (Burns et al., 1993; Lair & Lefkowitz, 1990). In addition, mental health treatment for older adults, especially psychological interventions, tends to be even more limited in residential and institutional settings due, in large part, to financial, regulatory, and administrative barriers (Karlin & Duffy, 2004). Consequently, the results of the current study do not generalize to the entire population. Second, the data from the NSDUH are self-report, which relies on memory and truthfulness. Although the validity of self-report data has been established in similar contexts as the NSDUH and the promotion of honesty and recall were emphasized in the design of the survey, overreporting or underreporting is possible (U.S. Department of Health & Human Services, 2003). Third, it is important to note that the survey is cross-sectional and yields prevalence and service use information covering only the past year. Fourth, the sample size to predictor ratio in the multiple linear regression analysis examining predictors of level of mental health service use for older adults was relatively low (4 to 1); as a result, the generalizability of the findings from this analysis may be limited. Further, the relatively low number of older mental health care users may have limited power and, therefore, the ability to achieve statistical significance in some cases. It is also important to acknowledge the potential endogeneity of health status in the analyses predicting SMI (Portrait,

Lindeboom, & Deeg, 2000). Although health status very well may influence SMI, SMI may influence health status (or perception thereof). Similarly, several other variables included as predictors of SMI may also be impacted by SMI, namely employment, personal income, household composition, and social support network. Finally, there are likely additional variables that were not captured by the NSDUH that affect current mental health care utilization by older adults, including internal factors and service system characteristics (Andersen, 1995). For example, past research on younger adults has found that attitudes are strongly associated with service use (Leaf et al., 1985).

As the foregoing reveals, mental health problems appear to be significantly undertreated in older and younger age cohorts; at the same time, the current findings indicate that, based on their own evaluations, older and younger adults that make it into services typically benefit considerably from treatment. These findings urge that greater attention be devoted to reducing mental health need and increasing service accessibility. Additional data on factors related to mental health care utilization by both community-dwelling and institutionalized older adults are needed. This includes examinations of older adults' knowledge of and views toward mental illness and mental health treatment and investigations and implementation of effective traditional and nontraditional outreach methods. Increasing access to mental health care by older adults is especially urgent given evidence that, over the next couple of decades, the need for mental health treatment by older adults will increase due to higher prevalence of mental disorders in future elderly cohorts (Gfroerer, Penne, Pemberton, & Folsom, 2003).

Several factors related to mental health need and service use were identified in the present study that can begin to assist outreach, policy, and planning efforts aimed at increasing service access. For example, the large impact of Medicaid eligibility on mental health service use documented for both older and younger adults urges that state cutbacks in Medicaid mental health care financing and restrictions in Medicaid coverage be eliminated. Further, the fact that older adults in poor health were much more likely than those in good health to have SMI underscores the need for heightened attention to and detection of mental health symptoms in older medical patients (e.g., through routine screening in primary care settings). Finally, investigation and dissemination of subjective treatment outcomes among older mental health care users (such as the findings of the current study regarding perceived treatment benefit) should be undertaken to increase motivation, knowledge, and acceptability of treatment.

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APPENDIX A

SYNDROME DEFINITIONS & CORRESPONDING ITEMS

Major Depression

Definition: Feeling sad, empty, or depressed, or experiencing loss of interest in most activities (such as work, hobbies, or other enjoyable things), along with changes in sleep, energy, appetite, or ability to concentrate, at least most of the day, nearly everyday for a period of at least 2 weeks.

Items

During the past 12 months, did you have a period of time lasting two weeks or longer when most of the time you felt sad, empty, or depressed? (MDEDP2WK)

During those weeks, did you feel sad or depressed nearly every day, or just some days? (MDEDAYFQ)

On the days you felt sad or depressed, did you usually feel that way all day, most of the day, about half the day, or less than half the day? (MDEDAYLN)

During those weeks when you felt sad or depressed, did you also have changes in sleep, energy, appetite, or the ability to concentrate? (MDECHNGS)

During the past 12 months, did you have a period of time lasting two weeks or longer when you lost interest in most things like work, hobbies, and other things you usually enjoy? (MDELOSIN)

During those weeks, did you lack interest in most things nearly everyday or just some days? (MDELIFQ)

On the days you lost interest, did you usually feel that way all day, most of the day, about half the day, or less than half the day? (MDELILN)

During those weeks when you lost interest in things, did you have any changes in sleep, energy, appetite, or your ability to concentrate? (MDELICHG)

Panic Attack

Definition: A sudden attack of fear and feeling suddenly very frightened, anxious, or uneasy, accompanied by physical reactions, such as sweating, shortness of breath, a racing heart, or dizziness.

Items

During the past 12 months, did you have a sudden attack of fear when out of the blue you became very frightened, anxious, or uneasy? (PANATAK)

Attacks like this often cause physical reactions like sweating, shortness of breath, a racing heart, or dizziness. During the past 12 months, did you have physical reactions like these when you had a sudden attack of fear? (PANREAC)

Social Phobia

Definition: Excessive fear of social or performance situations, such as giving a speech, meeting new people, going to parties, speaking up at a meeting, or being in a dating situation, and the feared situation(s) are often avoided or, if not avoided, are experienced with severe fear, and the fear or avoidance of the social or performance situation(s) causes a lot of interference in everyday life.

Items

Are you much more nervous, anxious, or fearful than most people would be about social or performance situations, like giving a speech, meeting new people, going to parties, speaking up at a meeting, or being in a dating situation? (PHBSOCL)

How often do you try to avoid this type of social or performance situation (often, sometimes, rarely, never)? (PHBAVOID)

Thinking about the social or performance situation that you fear the most, how strong is your fear when you find yourself in that situation? (PHBLEVEL)

How much does your fear or avoidance of this social or performance situation interfere with your everyday life or activities? (PHBINTFR)

GAD

Definition: Worrying more than most other people for at least 6 months about a number of different things, along with other problems including difficulties in sleep or concentration, feeling dizzy, easily tired, on edge, or irritable.

Items

During the past 12 months, about how many weeks did you feel more nervous or anxious than most other people? If you can't remember the exact number, just give your best estimate. (GADWKS2)

During those weeks, were you nervous or anxious about one or two particular things or about a number of different things? (GADNMWOR)

During the weeks when you were so worried, did you have other problems, like difficulty in sleep or concentration, or feeling dizzy, easily tired, on edge, or irritable? (GADOPROB)

Agoraphobia

Definition: Being much more nervous, anxious, or fearful than most people about being in places or situations in which most people would not be afraid, such as being in crowds, public places, traveling in a bus, train, or car, or being away from home alone, and the fear is often avoided or, if not avoided, is severe, and the fear or avoidance causes a lot of interference in everyday life.

Items

Are you much more nervous, anxious, or fearful than most people would be about being in crowds? (PHBCRWDS)

Are you much more nervous, anxious, or fearful than most people would be about going to public places? (PHBPUBPL)

Are you much more nervous, anxious, or fearful than most people would be about traveling in a bus, train, or car? (PHBTRAVL)

Are you much more nervous, anxious, or fearful than most people would be about being away from home alone? (PHBAWYHM)

How often do you try to avoid ____? (PHBWRSAV)

How much does your fear or avoidance of ____ interfere with your everyday life or activities? (PHBWRSIN)

How strong is your fear when you find yourself ____ (PHBWRSST)?

PTSD

Definition: Experiencing an extremely stressful event, such as being in a combat, being involved in a life-threatening accident, being involved in a disaster, being physically beaten or sexually abused, or any other event that was extremely upsetting or stressful in one's life, and having reactions to the experience in the past year like memories that are upsetting, feeling emotionally distant from people, trouble sleeping or concentrating, and feeling jumpy or easily startled at least several times a week for more than 4 weeks.

Items

In your life, have you ever had an extremely stressful experience such as being in combat, being involved in a life-threatening accident, being involved in a disaster, being physically beaten or sexually abused, or any other event that was extremely upsetting or stressful for you? (PTSEVER)

After experiences like this, people sometimes have reactions like memories that are upsetting, feeling emotionally distant from other people, trouble sleeping or concentrating, and feeling jumpy or easily startled. During the past 12 months, did you ever have any of these reactions to any extremely stressful experience, even if the experience was long ago? (PTSPYEAR)

During the past 12 months, about how many weeks did you have reactions life this at least several times a week? If you can't remember the exact number, just give your best estimate. (PTSWKS2)

Mania

Definition: A period of at least 4 days in a row in which respondent felt so excited or hyper that he or she either got into trouble or people worried about him or her being so excited, or a doctor stated the respondent was manic, along with difficulty sleeping while still not feeling tired or having the feeling as if he or she had special powers or the ability to do things that people really cannot do.

Items

During the past 12 months, were there at least four days in a row when you were so excited or hyper that you either got into trouble or people worried about your being so excited, or a doctor said you were manic? (MNCHYPER)

During the time when you were extremely excited or hyper, did you find that you could hardly sleep at all but still you didn't feel tired? (MNCNOSLP)

During the time when you were extremely excited or hyper, did you feel that you had special powers or that you could do things people really cannot do? (MNCSPWRS)

APPENDIX B

TABLES

Table 1

Demographic, Social, and Health Characteristics of Older and Younger Age Cohorts

Variable (%)	Older	Younger
Total (weighted)	31,320,975	170,714,863
Total (unweighted)	2,439	35,693
Gender		
Male	42.7	48.7
Female	57.3	51.3
Ethnicity		
White	82.9	71.8
Non-White	17.1	28.2
Marital Status		
Married	58.7	58.7
Non-Married	41.3	41.3
Education		
< High School	29.7	14.9
High School	34.0	32.0
> High School	36.3	53.1
Employment Status		
Employed[a]	17.2	78.6
Unemployed[b]	82.8	21.5

Table 1 (continued)

Variable (%)	Older	Younger
Household Composition		
Live with Other(s)	67.3	88.3
Live Alone	32.8	11.7
Social Support Network[c]		
0-1	14.2	14.6
2-3	23.7	27.6
≥ 4	62.1	57.9
Urbanicity		
MSA ≥ 1 Million	39.2	44.4
MSA < 1 Million	34.3	33.8
Not in MSA	26.6	21.8
Personal Income		
$0-$19,999	57.2	42.7
$20,000-$49,000	33.6	38.5
≥ $50,000	9.2	18.8
Medicare		
Yes	94.2	3.9
No	5.8	96.1

Table 1 (continued)

Variable	Older	Younger
Medicaid		
Yes	16.1	6.5
No	84.0	93.5
Private Health Insurance		
Yes	66.6	76.5
No	33.4	23.6
Health Status		
Good-Excellent[d]	72.6	90.1
Fair	19.6	7.5
Poor	7.8	2.3

Note. All percentages are based on weighted data.

[a]Includes full-time and part-time employment.

[b]Includes unemployed and individuals not in labor force.

[c]Reflects the number of friends individual identified as really liking or caring about him/her.

[d]Includes individuals identifying their health condition to be good, very good, or excellent.

Table 2

One-Year Prevalence Estimates of Serious Mental Illness (SMI) and Specific Mental Health Syndromes and Substance Use Disorders by Older and Younger Age Cohorts

Variable (%)	Older	Younger	χ^2	*df*	*p*
SMI	3.4	8.1	86.2	1	< .0001
At Least 1 Mental Health Syndrome	7.9	15.3	92.3	1	< .0001
Substance Abuse or Dependence	1.5	8.2	292.8	1	< .0001
Major Depression	1.9	5.9	100.8	1	< .0001
Panic Attack	5.3	9.6	46.7	1	< .0001
Social Phobia	0.4	1.0	13.3	1	.0003
GAD	0.3	1.6	71.6	1	< .0001
Agoraphobia	0.5	0.7	2.1	1	.15
PTSD	1.0	3.1	41.4	1	< .0001
Mania	0.3	1.4	33.3	1	< .0001

Note. Statistical comparisons are chi-square (SUDAAN CHISQ) tests, analogous to the Pearson chi-square for nonsurvey data. All percentages reflect weighted data.

Table 3

Results of Overall Predictors in Bivariate and Multiple Logistic Regression Analyses of Serious Mental Illness for Older and Younger Adults

	Older Adults				Younger Adults			
	Bivariate		Simultaneous		Bivariate		Simultaneous	
Variable	*F*	*p*	*F*	*p*	*F*	*p*	*F*	*p*
Gender	2.40	.12	.79	.38	75.54	< .0001	67.49	< .0001
Ethnicity	1.09	.30	.03	.86	8.32	.004	52.88	< .0001
Marital Status	5.72	.017	.61	.44	118.25	< .0001	38.00	< .0001
Education	7.32	.0007	2.05	.13	19.06	< .0001	1.39	.25
Employment Status	6.79	.009	1.03	.31	95.75	< .0001	10.48	.001
Household Composition	1.32	.25	.01	.91	32.02	< .0001	3.27	.07
Social Support Network	4.71	.009	1.95	.14	100.80	< .0001	72.66	< .0001
Urbanicity	1.41	.24	0.90	.41	4.76	.009	1.51	.22
Personal Income	6.32	.002	1.25	.29	70.84	< .0001	12.86	< .0001
Health Status	14.92	< .0001	9.08	.0001	113.35	< .0001	51.57	< .0001
Substance Disorder	5.46	.02	10.71	.001	312.81	< .0001	270.36	< .0001

Table 4

Significance Test Results and Odds Ratios of Individual Regression Coefficients in Bivariate and Multiple Logistic Regression Analyses of Serious Mental Illness for Older Adults

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Gender						
Male	-	-	-	-	-	-
Female	1.55	.12	1.52 (.89-2.60)	.89	.38	1.36 (.69-2.67)
Ethnicity						
White	-	-	-	-	-	-
Non-White	1.04	.30	1.54 (0.69-3.44)	-.18	.86	.92 (.37-2.30)
Marital Status						
Married	-	-	-	-	-	-
Non-Married	2.39	.017	1.90 (1.12-3.23)	.78	.44	1.37 (.62-3.06)
Education						
< High School	-	-	-	-	-	-
High School	-2.31	.02	.43 (.21-.88)	-1.69	.09	.57 (.30-1.09)
> High School	-3.68	.0003	.26 (.12-.53)	-1.58	.11	.54 (.25-1.16)
Employment Status						
Employed	-2.61	.009	.24 (.08-.71)	-1.02	.31	.58 (.20-1.66)
Unemployed	-	-	-	-	-	-

Table 4 (continued)

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Household Composition						
Live w/ Other(s)	-	-	-	-	-	-
Live Alone	1.15	.25	1.44 (.77-2.69)	-.12	.91	.95 (.41-2.22)
Social Support Network						
0-1	-	-	-	-	-	-
2-3	-1.23	.21	.61 (.28-1.34)	-.51	.61	.81 (.37—1.80)
≥ 4	-2.93	.003	.33 (.16-.70)	-1.75	.08	.47 (.20-1.10)
Urbanicity						
MSA ≥ 1M	-1.49	.14	.57 (.28-1.19)	-1.12	.26	.63 (.28-1.42)
MSA < 1M	-1.38	.17	.61 (.30-1.23)	-1.18	.24	.66 (.33-1.31)
Not in MSA	-	-	-	-	-	-
Personal Income						
$0-$19,999K	-	-	-	-	-	-
$20K-$49K	-3.18	.002	.39 (.22-.70)	-1.39	.16	.61 (.31-1.22)
≥ $50K	-1.92	.056	.14 (.02-1.05)	-.98	.33	.35 (.04-2.86)

Table 4 (continued)

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Health Status						
Good-Excellent	-	-	-	-	-	-
Fair	2.75	.006	2.15 (1.25-3.72)	1.34	.18	1.55 (.82-2.93)
Poor	5.39	< .0001	7.09 (3.48-14.47)	4.25	< .0001	15.00 (2.38-10.52)
Substance Disorder						
≥ 1 Disorder	2.34	.02	4.39 (1.27-15.18)	3.27	.001	8.03 (2.30-28.01)
No Disorders	-	-	-	-	-	-

Table 5

Significance Test Results and Odds Ratios of Individual Regression Coefficients in Bivariate and Multiple Logistic Regression Analyses of Serious Mental Illness for Younger Adults

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Gender						
Male	-	-	-	-	-	-
Female	8.69	< .0001	1.68 (1.49-1.89)	8.22	< .0001	1.76 (1.54-2.02)
Ethnicity						
White	-	-	-	-	-	-
Non-White	-2.88	.004	.83 (.74-.94)	-7.27	<.0001	.60 (.52-.68)
Marital Status						
Married	-	-	-	-	-	-
Non-Married	10.87	< .0001	2.04 (1.79-2.32)	6.16	< .0001	1.59 (1.37-1.84)
Education						
< High School	-	-	-	-	-	-
High School	-3.10	.002	.78 (.67-.91)	.18	.86	1.02 (.85-1.21)
> High School	-6.07	< .0001	.61 (.52-.72)	1.34	.18	1.14 (.94-1.37)
Employment Status						
Employed	-9.79	< .0001	.49 (.43-.57)	-3.24	.001	.77 (.66-.90)
Unemployed	-	-	-	-	-	-

Table 5 (continued)

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Household Composition				.		
Live w/ Other(s)	-	-	-	-	-	-
Live Alone	5.66	< .0001	1.56 (1.34-1.83)	1.81	.07	1.19 (.99-1.45)
Social Support Network				.		
0-1	-	-	-	-	-	-
2-3	-7.56	< .0001	.56 (.48-.65)	-6.10	< .0001	.60 (.50-.70)
≥ 4	-14.12	< .0001	.36 (.31-.41)	-11.78	< .0001	.37 (.31-.43)
Urbanicity						
MSA ≥ 1M	-1.99	.047	.86 (.73-1.00)	.17	.86	1.01 (.86-1.20)
MSA < 1M	.77	.44	1.07 (.91-1.26)	1.47	.14	1.13 (.96-1.33)
Not in MSA	-	-	-	-	-	-
Personal Income						
$0-$19,999K	-	-	-	-	-	-
$20K-$49K	-8.59	< .0001	.57 (.50-.64)	-2.68	.008	.83 (.72-.95)
≥ $50K	-10.22	< .0001	.27 (.21-.35)	-5.03	< .0001	.50 (.38-.65)

Table 5 (continued)

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Health Status						
Good-Excellent	-	-	-	-	-	-
Fair	11.29	< .0001	3.09 (2.54-3.76)	8.10	< .0001	2.34 (1.91-2.88)
Poor	9.96	< .0001	4.45 (3.31-5.97)	7.18	< .0001	3.47 (2.47-4.88)
Substance Disorder						
≥ 1 Disorder	17.69	< .0001	3.64 (3.15-4.20)	16.44	< .0001	3.67 (3.15-4.29)
No Disorders	-	-	-	-	-	-

Table 6

Outpatient Mental Health Care Use by Age Cohort and Service Setting

Variable (%)	Older	Younger	χ^2	*df*	*p*
Any Mental Health Service	2.5	7.0	38.9	1	< .0001
Outpatient Mental Health Center	0.5	1.3	5.5	1	.02
Private Therapist's Office	1.1	4.0	24.7	1	< .0001
Non-Clinic Doctor's Office	0.5	1.3	9.4	1	.002
Outpatient Medical Clinic	0.2	0.4	1.0	1	.32
Day Treatment Center	0.1	0.1	0.1	1	.82

Note. Statistical comparisons are log likelihood chi-square (SUDAAN LLCHISQ) tests. All percentages reflect weighted data.

Table 7

Results of Overall Predictors in Bivariate and Multiple Logistic Regression Analyses of Serious Mental Illness for Older and Younger Adults

	Older Adults				Younger Adults			
	Bivariate		Simultaneous		Bivariate		Simultaneous	
Variable	*F*	*p*	*F*	*p*	*F*	*p*	*F*	*p*
Gender	1.00	.32	1.35	.25	82.20	< .0001	35.90	< .0001
Ethnicity	1.04	.31	.03	.31	41.96	< .0001	36.11	< .0001
Marital Status	.01	.91	.00	.98	40.61	< .0001	7.28	.007
Education	.16	.92	.21	.81	9.71	.0001	15.92	< .0001
Employment Status	.12	.73	.04	.84	63.84	< .0001	13.09	.0003
Household Composition	.07	.79	.19	.67	39.87	< .0001	7.31	.007
Social Support Network	1.56	.21	1.98	.14	3.08	.046	2.22	.11
Urbanicity	1.05	.35	1.63	.20	1.12	.33	2.08	.13
Personal Income	.62	.54	1.53	.22	5.34	.005	2.87	.057
Medicare	2.65	.10	3.13	.08	-	-	-	-
Medicaid	.00	.99	.07	.79	95.21	< .0001	40.69	< .0001
Private Health Insurance	.11	.75	.77	.38	3.86	.05	9.27	.002
Health Status	2.99	.05	3.10	.045	57.21	< .0001	15.79	< .0001
Mental Health Syndrome	20.58	< .0001	19.87	< .0001	968.41	< .0001	708.61	< .0001
Substance Disorder	2.74	.10	2.56	.11	58.81	< .0001	6.86	.009

Table 8

Significance Test Results and Odds Ratios of Individual Regression Coefficients in Bivariate and Multiple Logistic Regression Analyses of Any Mental Health Service Use for Older Adults

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Gender						
Male	-	-	-	-	-	-
Female	1.00	.32	1.41 (.72-2.75)	1.16	.25	1.60 (.72-3.52)
Ethnicity						
White	-	-	-	-	-	-
Non-White	-1.02	.31	.62 (.25-1.55)	-1.01	.31	.60 (.22-1.62)
Marital Status						
Married	-	-	-	-	-	-
Non-Married	.11	.91	1.04 (.53-2.04)	.03	.98	1.01 (.33-3.15)
Education						
< High School	-	-	-	-	-	-
High School	.40	.69	1.17 (.54-2.55)	.14	.89	1.06 (.49-2.27)
> High School	.14	.89	1.06 (.47-2.43)	-.48	.63	.80 (.33-1.97)
Employment Status						
Employed	-.35	.73	.85 (.35-2.09)	-.21	.84	.92 (.40-2.12)
Unemployed	-	-	-	-	-	-

Table 8 (continued)

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Household Composition						
Live w/ Other(s)	-	-	-	-	-	-
Live Alone	-.27	.79	.90 (.43-1.89)	-.43	.67	.76 (.22-2.63)
Social Support Network				.		
0-1	-	-	-	-	-	-
2-3	-.03	.98	.98 (.20-4.77)	.09	.93	1.08 (.21-5.61)
≥ 4	.90	.37	1.95 (.46-8.29)	1.14	.25	2.38 (.54-10.57)
Urbanicity						
MSA ≥ 1M	.92	.36	1.41 (.68-2.94)	1.19	.23	1.59 (.74-3.40)
MSA < 1M	-.55	.58	.79 (.35-1.82)	-.49	.63	.80 (.33-1.94)
Not in MSA	-	-	-	-	-	-
Personal Income						
$0-$19,999K	-	-	-	-	-	-
$20K-$49K	1.11	.27	1.47 (.74-2.92)	1.68	.09	1.95 (.90-4.26)
≥ $50K	.28	.78	1.19 (.35-4.10)	1.11	.27	2.09 (.57-7.73)
Medicare						
Yes	1.63	.10	2.87 (.80-10.22)	1.77	.08	3.44 (.87-13.53)
No	-	-	-	-	-	-

Table 8 (continued)

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Medicaid						
Yes	-.02	.99	.99 (.40-2.47)	-.26	.79	.87 (.32-2.41)
No	-	-	-	-	-	-
Private Health Insurance						
Yes	-.33	.74	.89 (.45-1.76)	-.88	.38	.73 (.36-1.47)
No	-	-	-	-	-	-
Health Status						
Good-Excellent	-	-	-	-	-	-
Fair	.03	.98	1.01 (.43-2.38)	.09	.93	1.04 (.40-2.69)
Poor	2.38	.02	2.81 (1.20-6.57)	2.43	.02	3.22 (1.25-8.31)
Mental Health						
≥ 1 Syndrome	4.54	< .0001	5.56 (2.65-11.69)	4.46	< .0001	5.71 (2.65-12.29)
No Syndromes	-	-	-	-	-	-
Substance Disorder						
≥ 1 Disorder	1.65	.098	3.74 (.78-17.87)	1.60	.11	3.66 (.75-18.00)
No Disorders	-	-	-	-	-	-

Table 9

Results of Bivariate and Multiple Logistic Regression Analyses of Specific Mental Health Syndrome Correlates of Any Mental Health Service Use for Older Adults

	Bivariate			Simultaneous		
Variable	*F*	*p*	*OR* (95% CI)	*F*	*p*	*OR* (95% CI)
Major Depression	28.06	< .0001	14.70 (5.43-39.81)	23.32	< .0001	13.73 (4.74-39.83)
Panic Attack	17.44	< .0001	5.16 (2.39-11.15)	8.93	.003	3.74 (1.57-8.89)

Table 10

Significance Test Results and Odds Ratios in Bivariate and Multiple Logistic Regression Analyses of Any Mental Health Service Use for Younger Adults

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Gender						
Male	-	-	-	-	-	-
Female	9.07	< .0001	1.92 (1.66-2.21)	5.99	< .0001	1.63 (1.39-1.91)
Ethnicity						
White	-	-	-	-	-	-
Non-White	-6.48	< .0001	.55 (.46-.66)	-6.01	< .0001	.54 (.44-.66)
Marital Status						
Married	-	-	-	-	-	-
Non-Married	6.37	< .0001	1.57 (1.37-1.81)	2.70	.007	1.26 (1.07-1.49)
Education						
< High School	-	-	-	-	-	-
High School	.22	.82	1.02 (.83-1.27)	.62	.54	1.08 (.85-1.38)
> High School	3.04	.002	1.38 (1.12-1.69)	4.12	< .0001	1.64 (1.30-2.09)
Employment Status						
Employed	-7.99	< .0001	.55 (.47-.64)	-3.62	.0003	.73 (.61-.87)
Unemployed	-	-	-	-	-	-

Table 10 (continued)

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Household Composition						
Live w/ Other(s)	-	-	-	-	-	-
Live Alone	6.31	< .0001	1.73 (1.46-2.04)	2.70	.007	1.36 (1.09-1.69)
Social Support Network						
0-1	-	-	-	-	-	-
2-3	-.85	.40	.92 (.76-1.12)	-.31	.76	.97 (.77-1.21)
≥ 4	-2.31	.02	.81 (.67-.97)	-1.70	.09	.83 (.67-1.03)
Urbanicity						
MSA ≥ 1M	1.22	.22	1.11 (.94-1.31)	1.98	.048	1.21 (1.00-1.47)
MSA < 1M	1.42	.16	1.13 (.95-1.35)	.82	.41	1.08 (.90-1.30)
Not in MSA	-	-	-	-	-	-
Personal Income						
$0-$19,999K	-	-	-	-	-	-
$20K-$49K	-3.03	.003	.79 (.67-.92)	1.19	.23	1.12 (.93-1.34)
≥ $50K	-2.15	.03	.81 (.66-.98)	2.40	.02	1.35 (1.06-1.73)
Medicaid						
Yes	9.76	< .0001	2.69 (2.20-3.28)	6.38	< .0001	2.34 (1.80-3.04)
No	-	-	-	-	-	-

Table 10 (continued)

	Bivariate			Simultaneous		
Variable	*t*	*p*	*OR* (95% CI)	*t*	*p*	*OR* (95% CI)
Private Health Insurance						
Yes	-1.96	.0499	.85 (.72-1.00)	3.04	.0024	1.36 (1.12-1.66)
No	-	-	-	-	-	-
Health Status						
Good-Excellent	-	-	-	-	-	-
Fair	8.60	< .0001	2.57 (2.07-3.19)	5.43	< .0001	1.93 (1.52-2.45)
Poor	7.00	< .0001	3.34 (2.38-4.69)	2.30	.02	1.60 (1.07-2.38)
Mental Health						
≥ 1 Syndrome	31.12	< .0001	9.09 (7.91-10.44)	26.62	< .0001	7.51 (6.47-8.71)
No Syndromes	-	-	-	-	-	-
Substance Disorder						
≥ 1 Disorder	7.67	< .0001	2.00 (1.68-2.39)	2.62	.009	1.32 (1.07-1.63)
No Disorders	-	-	-	-	-	-

Table 11

Results of Bivariate and Multiple Logistic Regression Analyses of Specific Mental Health Syndrome Correlates of Any Mental Health Service Use for Younger Adults

	Bivariate			Simultaneous		
Variable	*F*	*p*	*OR* (95% CI)	*F*	*p*	*OR* (95% CI)
Major Depression	758.65	< .0001	9.71 (8.26-11.42)	158.66	< .0001	4.54 (3.59-5.74)
Panic Attack	664.54	< .0001	7.30 (6.27-8.49)	160.95	< .0001	3.45 (2.85-4.18)
Social Phobia	136.08	< .0001	7.18 (5.15-10.01)	.45	.50	.83 (.47-1.45)
GAD	289.61	< .0001	9.98 (7.65-13.01)	11.38	.0008	2.04 (1.35-3.08)
Agoraphobia	165.45	< .0001	11.97 (8.19-17.47)	3.95	.047	1.94 (1.01-3.73)
PTSD	740.00	< .0001	6.76 (5.89-7.76)	15.23	.0001	1.80 (1.34-2.41)
Mania	230.56	< .0001	8.84 (6.67-11.71)	14.21	.0002	2.22 (1.46-3.36)

Table 12

Results of Overall Predictors in Bivariate and Multiple Linear Regression Analyses of Level of Mental Health Service Use for Older and Younger Adults

	Older Adults[a]				Younger Adults[b]			
	Bivariate		Simultaneous		Bivariate		Simultaneous	
Variable	*F*	*p*	*F*	*p*	*F*	*p*	*F*	*p*
Gender	.16	.69	.73	.39	.50	.48	.50	.48
Ethnicity	1.07	.30	.01	.93	.00	.96	.13	.72
Marital Status	2.01	.16	2.18	.14	14.44	.0002	6.64	.01
Education	3.15	.04	.49	.62	9.67	.0001	14.70	< .0001
Employment Status	2.67	.10	.01	.92	12.63	.0004	13.55	.0002
Household Composition	.55	.46	3.08	.08	5.43	.02	1.73	.19
Social Support Network	.60	.55	.24	.78	.06	.95	.14	.87
Urbanicity	2.93	.05	4.75	.009	6.00	.003	5.74	.003
Personal Income	1.67	.19	1.20	.30	2.70	.07	1.92	.15
Medicare	5.85	.02	.74	.39	-	-	-	-
Medicaid	3.30	.07	12.58	.0004	5.46	.02	5.11	.02
Private Health Insurance	.00	1.0	2.55	.11	1.35	.25	.63	.43
Health Status	3.33	.04	1.98	.14	.90	.41	.11	.90

Table 12 (continued)

	Older Adults[a]				Younger Adults[b]			
	Bivariate		Simultaneous		Bivariate		Simultaneous	
Variable	*F*	*p*	*F*	*p*	*F*	*p*	*F*	*p*
Mental Health Syndrome	1.59	.21	6.04	.01	16.55	.0001	19.80	< .0001
Substance Disorder	.13	.72	9.49	.002	1.61	.21	.55	.46

Note. [a]unweighted $n = 65$.

[b]unweighted $n = 2{,}554$.

Table 13

Results of Bivariate and Multiple Linear Regression Analyses of Level of Mental Health Service Use for Older Adults (unweighted n = 65)

	Bivariate				Simultaneous			
Variable	*B*	*SE B*	*β*	*p*	*B*	*SE B*	*β*	*p*
Gender								
Male	-	-	-	-	-	-	-	-
Female	1.06	2.68	.06	.69	2.09	2.45	.12	.39
Ethnicity								
White	-	-	-	-	-	-	-	-
Non-White	-2.27	2.19	-.08	.30	-.29	3.30	-.01	.93
Marital Status								
Married	-	-	-	-	-	-	-	-
Non-Married	3.78	2.67	.23	.16	3.60	2.44	.21	.14
Education								
< High School	-	-	-	-	-	-	-	-
High School	-1.37	1.88	-.08	.47	1.11	2.33	.06	.63
> High School	5.99	3.19	.34	.06	3.60	3.67	.20	.33
Employment Status								
Employed	5.77	3.53	.24	.10	-.41	4.12	-.02	.92
Unemployed	-	-	-	-	-	-	-	-

Table 13 (continued)

	Bivariate				Simultaneous			
Variable	*B*	*SE B*	*β*	*p*	*B*	*SE B*	*β*	*p*
Household Composition								
Live w/ Other(s)	-	-	-	-	-	-	-	-
Live Alone	2.39	3.22	.13	.46	-4.82	2.75	-.27	.08
Social Support Network								
0-1	-	-	-	-	-	-	-	-
2-3	-3.17	4.43	-.15	.48	-1.17	3.75	-.06	.76
≥ 4	-.98	4.45	-.06	.83	-1.82	2.64	-.10	.49
Urbanicity								
MSA ≥ 1M	6.42	2.66	.38	.02	6.76	2.26	.40	.003
MSA < 1M	.91	1.66	.05	.58	1.38	1.79	.08	.44
Not in MSA	-	-	-	-	-	-	-	-
Personal Income								
$0-$19,999K	-	-	-	-	-	-	-	-
20K-$49K	.96	2.80	.06	.73	-2.39	2.88	-.14	.41
≥ $50K	7.54	4.13	.26	.07	1.91	4.53	.07	.67
Medicare								
Yes	4.04	1.67	.09	.02	4.34	5.06	.09	.39
No	-	-	-	-	-	-	-	-

Table 13 (continued)

	Bivariate				Simultaneous			
Variable	*B*	*SE B*	*β*	*p*	*B*	*SE B*	*β*	*p*
Medicaid								
Yes	8.20	4.51	.35	.07	11.62	3.28	.50	.0004
No	-	-	-	-	-	-	-	-
Private Health Insurance								
Yes	.00	2.64	.00	1.0	3.41	2.14	.20	.11
No	-	-	-	-	-	-	-	-
Health Status								
Good-Excellent	-	-	-	-	-	-	-	-
Fair	-4.92	1.98	-.25	.01	-2.51	2.02	-.13	.22
Poor	-2.60	3.18	-.12	.41	1.36	2.22	.06	.54
Mental Health								
≥ 1 Syndrome	3.37	2.68	.20	.21	4.05	1.65	.24	.01
No Syndromes	-	-	-	-	-	-	-	-
Substance Disorder								
≥ 1 Disorder	-1.11	3.12	.03	.72	-9.69	3.15	-.27	.002
No Disorders	-	-	-	-	-	-	-	-

Table 14

Results of Bivariate and Multiple Linear Regression Analyses of Level of Mental Health Service Use for Younger Adults (unweighted n = 2,554)

	Bivariate				Simultaneous			
Variable	*B*	*SE B*	*β*	*p*	*B*	*SE B*	*β*	*p*
Gender								
Male	-	-	-	-	-	-	-	-
Female	-.40	.56	-.02	.48	-.40	.56	-.02	.48
Ethnicity								
White	-	-	-	-	-	-	-	-
Non-White	-.04	.67	.00	.96	-.27	.73	-.01	.72
Marital Status								
Married	-	-	-	-	-	-	-	-
Non-Married	1.81	.48	.11	.0002	1.20	.47	.07	.01
Education								
< High School	-	-	-	-	-	-	-	-
High School	.35	.70	.02	.61	1.08	.76	.06	.16
> High School	2.36	.62	.14	.0001	3.45	.79	.20	< .0001
Employment Status								
Employed	-1.91	.54	-.10	.0004	-2.27	.62	-.12	.0002
Unemployed	-	-	-	-	-	-	-	-

Table 14 (continued)

	Bivariate				Simultaneous			
Variable	*B*	*SE B*	*β*	*p*	*B*	*SE B*	*β*	*p*
Household Composition								
Live w/ Other(s)	-	-	-	-	-	-	-	-
Live Alone	1.79	.77	.08	.02	.91	.69	.04	.19
Social Support Network								
0-1	-	-	-	-	-	-	-	-
2-3	-.08	.79	-.01	.92	.32	.76	.02	.67
≥ 4	-.20	.65	-.01	.76	.05	.62	.00	.94
Urbanicity								
MSA ≥ 1M	1.96	.66	.11	.003	1.42	.66	.08	.03
MSA < 1M	.25	.62	.01	.69	-.28	.62	-.02	.65
Not in MSA	-	-	-	-	-	-	-	-
Personal Income								
$0-$19,999K	-	-	-	-	-	-	-	-
$20K-$49K	-.54	.53	-.03	.30	.41	.53	.02	.44
≥ $50K	1.48	.83	.06	.07	1.80	.92	.08	.05
Medicaid								
Yes	1.74	.74	.07	.02	2.08	.92	.08	.02
No	-	-	-	-	-	-	-	-

Table 14 (continued)

	Bivariate				Simultaneous			
Variable	*B*	*SE B*	*β*	*p*	*B*	*SE B*	*β*	*p*
Private Health Insurance								
Yes	-.65	.56	-.03	.25	.52	.65	.03	.43
No	-	-	-	-	-	-	-	-
Health Status								
Good-Excellent	-	-	-	-	-	-	-	-
Fair	.92	.80	.04	.25	.35	.78	.02	.65
Poor	1.00	1.29	.03	.44	.35	1.41	.01	.80
Mental Health								
≥ 1 Syndrome	1.95	.48	.11	.0001	1.97	.44	.12	< .0001
No Syndromes	-	-	-	-	-	-	-	-
Substance Disorder								
≥ 1 Disorder	.93	.73	.04	.21	.51	.69	.02	.46
No Disorders	-	-	-	-	-	-	-	-

Table 15

Results of Bivariate and Multiple Linear Regression Analyses of Specific Mental Health Syndrome Correlates of Level of Mental Health Service Use for Younger Adults (unweighted n = 2,482)

	Bivariate				Simultaneous			
Variable	*B*	*SE B*	*β*	*p*	*B*	*SE B*	*β*	*p*
Major Depression	2.30	.56	.13	< .0001	1.44	.50	.08	.004
Panic Attack	1.79	.50	.10	.0004	.83	.44	.05	.06
Social Phobia	5.20	1.49	.13	.0005	2.94	1.48	.08	.048
GAD	4.15	1.05	.14	.0001	2.98	1.10	.10	.007
Agoraphobia	3.94	1.62	.10	.01	-.27	1.50	-.01	.86
PTSD	2.49	.73	.10	.0006	1.03	.73	.04	.16
Mania	3.60	1.14	.11	.002	2.51	1.16	.08	.03

Table 16

Identified Factors Contributing to Unmet Mental Health Need by Age Cohort

Variable (%)	Older	Younger	χ^2	*df*	*p*
Lack of Affordability	18.6	37.1	2.6	1	.11
Concern About Neighbors' Opinion	12.4	7.5	0.3	1	.56
Concern About Effect On Job	6.3	6.7	0.0	1	.95
No Health Insurance Coverage	10.6	6.9	0.2	1	.62
Insufficient Health Insurance Coverage	9.3	11.8	0.1	1	.77
Didn't Know Where To Go	27.7	13.3	1.0	1	.33
Concern About Confidentiality	0.0	5.3	11.3	1	< .001
Concern About Commitment/Medication	0.0	5.7	10.6	1	.001

Note. Statistical comparisons are chi-square (SUDAAN CHISQ) tests, analogous to the Pearson chi-square for nonsurvey data. Percentages reflect the percent of total number of older and younger individuals reporting needing but not receiving mental health treatment in the past year. All percentages reflect weighted data.

Table 17

Unadjusted and Adjusted Mean Scores and Standard Errors of Perceived Benefit of Mental Health Treatment by Age Group

Age Group (%)	Unadjusted *M*	*SE*	Adjusted *M*	*SE*
18-25[a]	2.91_a	0.04	2.99_a	0.06
26-34[b]	3.34_b	0.06	3.26_b	0.07
35-49[c]	3.51_b	0.05	3.46_b	0.05
50-64[d]	3.43_b	0.08	3.47_b	0.08
65+[e]	3.30_b	0.11	3.48_b	0.15

Note. Perceived benefit of mental health treatment concerns the extent to which one found mental health treatment to improve their ability to manage daily activities. Possible responses included "none," "a little," "some," "a lot," or "a great deal," which were converted into numerical values ("none" = 0; "a little" = 1, "some" = 2, "a lot" = 3, "a great deal" = 4). Analyses included only individuals that received mental health treatment in the past year. Means in the same column with different subscripts differ at Bonferroni-adjusted value of $p < .01$.

[a]unweighted $n = 1{,}908$.

[b]unweighted $n = 717$.

[c]unweighted $n = 1{,}261$.

[d]unweighted $n = 424$.

[e]unweighted $n = 185$.

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Ph.D., Clinical Psychology, Texas A&M University, 2005
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M.S., Psychology, Texas A&M University, 2001
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Selected Honors and Awards

First Place, Student Research Week, Texas A&M University, 2004
TAMU College of Liberal Arts Dissertation Award, Psychology Dept. Nominee, 2004
American Psychological Association Student Travel Award, 2003
Research Excellence Award, Texas A&M Clinical Psychology Program, 2001
AARP Andrus Foundation Graduate Scholarship, 2000
University Merit Fellowship, Texas A&M University, 1999
USA TODAY All-USA Academic Team, Honorable Mention, 1997
James P. Angell Scholar, University of Michigan, 1996

Selected Publications

Karlin, B. E., Creech, S. K., Grimes, J. S., Clark, T. S., Meagher, M. W., & Morey, L. C. (in press). The Personality Assessment Inventory with chronic pain patients: Psychometric properties and clinical utility. *Journal of Clinical Psychology*.

Karlin, B. E., & Norris, M. P. (in press). Public mental health care utilization by older adults. *Administration and Policy in Mental Health.*

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